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# THE SIGHT-SAVING REVIEW

September, 1931

**"Let There Be Sight"**

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## The Cinema and the Eye

Park Lewis, M.D.

**V**IEWING motion pictures entails less eyestrain than reading a book for a corresponding length of time, says Dr. Lewis—provided that one's eyes function normally, that the film is not worn too much, and that the projection and illumination are good. The position of the spectator in relation to the screen is also important.

### How the Eye Sees

**I**N ORDER that we may the better understand the effect of the cinema on our eyes we must know something of the way in which outside impressions affect our consciousness. We are in fact seeing moving pictures from the time that our eyes are opened in the morning until they are closed at night. Either we are moving ourselves or somewhere within the range of our field of vision there is constant movement. It may be the flickering sunshine, the tremulousness of the leaves in the trees, the passing of flying birds, the fluttering of the garments of those who are near us, the vehicles in the roadway or any other of the constantly changing impressions that indirectly meet our eyes. These are of such continued occurrence that we grow to ignore them. They nevertheless stimulate the retinal elements and we become at once aware of them as soon as we are conscious of their presence. The impressions of the objects that we regard as stationary are not as free from motion as they appear to be.

Now in fact we are never absolutely still. Our eyes are continuously adjusting themselves to the changes in position which we ourselves assume so that if we are looking at a fixed object the image which it makes on our retinae can be fixed only if we are as still as the object of our attention. The head will move forward or

backward, the body will sway to some degree even though we may be wholly unconscious of any motion. Moreover, any fixity of gaze for more than a very short time is fatiguing so we almost automatically and unconsciously look from one detail to another. Nor do the eyes move from point to point with a continuous motion. In reading, the eyes follow the lines in a series of jerks, the interval between these allowing the image to be received on the nerve endings and recorded before the next rapid motion is made. In stereoscopic vision when both eyes are working together to produce a single impression all of the external motor muscles that control the action of the eyeballs are brought into play. When the object on which the gaze is fixed is itself in motion the interplay of co-ordinate action is almost inconceivably rapid.

Consider for a moment the muscular activities that are necessary to maintain the harmonious, balanced action of the eye muscles in the driving of a golf ball or, to a still greater degree, in a great baseball batter like Babe Ruth who fixing his attention on the pitcher, must anticipate the kind of a ball which will be thrown. The interval that elapses between the time that the ball leaves the pitcher's hand and its arrival over the home plate is measured in fractions of a second, the ball being propelled with the velocity almost of an arrow, before it can be struck. In that almost incalculably short period, he must so direct all of his muscles including those of his eye as to enable him to strike the ball at the chosen distance from the end of the club to give it its driving force, to strike it with the center of the curved surface and not with an edge and to determine the exact direction in which he wishes it to go. This combination of muscular actions becomes in time automatic but they are all unconsciously controlled by the definite even though subconscious impressions that that flying ball is making on the player's retina.

### **Moving Pictures without the Screen**

The moving pictures that meet the eye as we walk along the street differ in several respects from those that are usually shown in the cinema. Often we and the objects that we pass are both in motion. Indeed, as we have shown, in some measure this is always so. If, however, the objects are at some distance from our eyes,

the angle which they form on our retinae is a long one. The longer this angle is, the slower the sense of motion seems to be. This is more easily appreciated if we are looking from a rapidly moving train. By holding in view several objects which are at varying distances, such as a fence by the roadside, a bunch of shrubbery a hundred yards away and an elm tree half a mile off, the motion from us will seem to be in inverse ratio to the distance; the fence rails will seem to be rushing by with such speed that the individual details will be indistinguishable and the impression will be confused and unstable. The fence itself will seem to be in rapid motion and flying past us. The shrubbery will also appear to be moving by us but more slowly. The tree in the distance will seem to be still, till we look beyond it to the distant mountain top, and then it will appear to be slowly moving past us.

The sense of motion is emphasized by the relationship of one object to another that appears to be moving faster because of our nearness to it. An illusion is often produced of an object that seems to be in motion when it is we ourselves that are moving and the object is still, or the reverse in which we appear to be still when it is we that are moving and the object itself is quiet. This is most evident in the starting of a railway train on the track next to the one in which we are waiting or from a ship's deck as we are leaving the pier. We may feel quite convinced that it is our train that is in motion although it has not yet started, or that it is the pier that is moving instead of the boat. A far distant object such as the moon or a star may be speeding across the heavens with almost inconceivable rapidity and yet seem absolutely stationary until we watch it for a few minutes in relation to a flying cloud or another star.

All of this may seem to be a long introduction to a very simple subject but it is necessary to understand how the eyes act together and in relation to moving objects if we would realize how moving objects may disagreeably or even disastrously affect them. It is even necessary to know a little more about the eye and its construction as well as of its reactions to outside influences. There are two parts in the perceptive elements of our eyes that function somewhat differently. The part concerned with direct vision is almost microscopic in size and is made up of minute terminal filaments something like cones. With these we get the details of

the objects at which we look. It is this minute area that we use in reading or in getting the clearly defined outline of a distant object. If this is destroyed all accuracy of sight is lost. It does not function continuously. It perceives quickly but the impression fades with equal rapidity so that we actually see in a series of rapid flashes with intervals of about one-tenth of a second. The surrounding field of vision, that which perceives objects at which we are not directly looking, but which are at one or the other side of us, is quite as important in another way. It is this part of the eye that warns us of the approach of a coming automobile. It prevents us from colliding with passersby in the street. It has the quality of recognizing brightness and moving forms to a higher degree than can the visual center. This may be easily demonstrated by looking directly at a star of lower magnitude. If the eyes be then directed a little to one side or the other of it, its brilliancy will be immediately increased. This area is made up of a preponderance of longer and slimmer nerve terminals which are called rods. Many birds have almost exclusive rod terminals which enable them to avoid each other in their rapid flights. A person standing in the twilight will hardly be seen until he moves; then at once this part of the eye is conscious of his presence.

### **Important Elements in a Moving Picture**

The importance of these physiological facts will be apparent when we realize that in looking at the screen we are watching the blending of a series of enlarged pictures illuminated by transmitted light projected from a distance.

There are, therefore, four elements to be considered in an inquiry as to whether the pictures shown in this way can in any degree be injurious to the eyes of the observer. These have to do with the quality of the film, with the arrangement of the lighting and the mechanism of the motion, and with the position of the observer. The final and important requirement is that his own eyes shall function normally.

The first requisite is that the screen picture shall be clear and distinct. The captions and other descriptive matter accompanying the view should be sufficiently large to be easily read and not so redundant that the reading may not be easily completed before it disappears. That the film may be clearly shown depends on sev-

eral elements. The first is the illumination. This should be adequate but not glaring. A glare is an excess of unfocused light; a sharp unshielded bundle of light rays coming from one side or the other or reflected from the screen itself, or from an unshaded light bulb in the dimness of the playhouse, will cause unnecessary discomfort.

The arrangement of the scene itself so that glaring reflections are thrown back on the audience is now of infrequent occurrence as the good producers are employing the assistance of the best artistic and illuminating engineering talent. It is better that the hall in which the picture is shown be not too dark. Strong contrasts of light and darkness are not pleasant and the details of the picture are brought out with even greater clearness in a twilight atmosphere if there are no distracting light sources visible. It is imperative that the film be run through with just the right degree of rapidity to make the images stand out and to move with the deliberation of actual living people. The beauty as well as the eye comfort of what might otherwise be an exquisite picture is often ruined by the rapidity with which it is shown. In the exhibition of an instructive picture recently shown in an educational institution of high standing a current of twenty-five instead of sixty cycles was used. This together with some fault in the motor mechanism caused a constant flickering of the light that gave the impression of a picture seen through falling water. The sensation produced was most uncomfortable and soon became fatiguing. The whole effect of the picture was thereby lost and the illusion destroyed.

It is also important that films be retired from service after a reasonable amount of use. When they become spotted and cracked either from the heat of the lamp or from too long continued use, they give blurred and indistinct impressions and are neither attractive nor comfortable to look upon. In some of the cheaper picture houses they are used much too long.

The position which the observer occupies in relation to the screen contributes very much to the eye comfort. If he is too close to the screen the pictures become blurred and confused, and defects are emphasized. The same effect is produced if the picture is viewed from too great an angle from one side or the other. Sometimes these nearer inferior seats are cheaper and are occupied by children whose eyes are more easily harmed by the resulting strain than

would be the eyes of older people. Children should not be allowed to occupy these less desirable positions. The best place from which the picture can be viewed is near the center of the hall and directly in front of the screen.

### **Good Sight Needed to See Moving Pictures**

The final requirement, if the film is to be seen without discomfort, is that the eyes of the observer shall be functionally normal and of good visual acuity. When in the absence of any of the defects above mentioned—in the screen, in the evenness with which it is shown, in the illumination and in the position of the observer—there is still a consciousness of strain which is not occasional but persistent, it is safe to assume that there is present some ocular defect that should be corrected. It may be focal or muscular but it will be found that any other continuous use of the eyes will be equally discomfiting. In that event the eyes should be examined in order that the defect may be found and corrected and the prescribed glasses worn.

In a recent inquiry which was instituted by Professor De Feo of Italy and presented at the annual session of the League of Nations, opinions were secured from leading eye physicians throughout the world, including Professors Van der Hoeve of Holland, Ovio of Italy, de Lapersonne of France, de Grósz of Hungary, Angelucci of Italy, and others of equal eminence. The agreement was general in the views expressed above. The following conclusions, therefore, seem warranted: that under normal physiological conditions, moving pictures do not cause serious eye fatigue; that since viewing moving pictures is distant vision it does not demand so great an ocular effort as near vision—such as reading for a corresponding length of time; that when eyestrain is caused by moving pictures it is due to one or another preventable condition such as too prolonged fixing of the attention on a single point, or defective visual function, to a bad position of the observer in relation to the screen, to poor films, improper manipulation of the apparatus, to faulty projection or to improper illumination. With these reservations there is no more harm to the eyes in viewing the moving pictures with modern improved methods than there is in any other normal use of the eyes.



## Why Student Nurses Should Be Taught Conservation of Vision \*

Zoe La Forge, R.N.

**I**N hospitals, schools, and homes, nurses are serving the cause of prevention of blindness daily. As Miss La Forge points out, the nurse's attention to her patient's eyesight with the thought of conserving vision is simply part of the general change in emphasis from care of emergencies to prevention of illness and promotion of good health.

**A**PRESENTATION of the broad outlines of the hospital background of the student nurse in contrast to the field of public health nursing may help us to focus the picture of the need for more and better teaching of conservation of vision in many schools of nursing.

### Public Health Nursing Field

In the field of public health, the nurse is primarily a teacher. Her preparation for the job of teaching has been in the main what she gets in the training school, where the methods and application are that of classroom theory and prompt application of the theory in situations requiring exact execution and where in case of failure to make the appropriate application, there is prompt and often drastic disapproval. The situations may include many in which failure is the determining factor between life and death; very few are in relation to persons in normal or apparently normal health. They are charged with the elements of drama, grave responsibility resting upon the physician and the nurse for the out-

\* Presented May 7, 1931, at the Round-Table Conference on Conservation of Vision during the Annual Meeting of the National League of Nursing Education, Atlanta, Georgia, and appearing simultaneously in the *American Journal of Nursing*, September, 1931.

come, both for the well-being of the patient and for the professional future of the nurse. Swiftmess of action and accuracy of judgment are required in the rapidly changing scenes in the hospital. No better method for rapidity of learning has been devised in any educational system than the hospital setting just described.

In general, the student nurse, or any other nurse in the hospital, and the physician find the convalescent or the mildly ill patient uninteresting in comparison with the patient requiring the maximum of effort and medical skill. In convalescence the element of drama is removed and humdrum routine is restored. This may be the explanation of the preference on the part of most young graduates for surgery, the most swiftly moving service in the hospital.

The public health nursing field is in sharp contrast to the daily hospital situations of rapid turnover of patients, with a succession of seriously ill patients for whom life or death may be determined by the skillful ministrations of the doctor and the nurse. In public health nursing the possibility of continuous skilled nursing care is non-existent. Between her visits a substitute for the nurse must be found in some member of the patient's family or among her neighbors; the substitute must be taught to perform the necessary nursing procedures until the nurse comes again. And still further substitution in all probability must be done; for most of the convenient appliances of the hospital an improvisation will be made, usually from the fertile brain of the nurse. The physician's orders may be simple, brief and lucid even to a child's understanding, and yet there may be no certainty that they will be executed by the substitute as they are intended.

### **Conservation of Vision in Public Health**

The problem of the conservation of vision is met at numerous points in the field of public health. The earliest activities of the public health or visiting nurse were those of communicable disease, school nursing, infant and maternity care, with industrial nursing following a short time later. The changing emphasis in public health from the care of emergencies to a program of prevention of illness and promotion of health throughout the range of human experience by means of educational measures still entails the necessity for consideration of measures for the care of the eyes and

conservation of vision. In certain communicable diseases, notably tuberculosis, syphilis and gonorrhea, and in certain general diseases, as nephritis and the nutritional deficiency diseases, the complicating eye involvement requires prompt recognition and treatment if the vision is to remain unimpaired or to be even partially preserved. These conditions may be found in varying degrees of severity at any age. They may be the most conspicuous element in the picture or they may be so obscure as to be a matter of doubt even to a trained and critical observer.

### **Where the Public Health Nurse Helps**

Several services now commonly included in the program of public and private agencies concerned with health, presenting problems of vision conservation will be briefly discussed. The maternity service of most health agencies includes prenatal and postpartum service and care of the newborn; delivery service is provided in very few. The significance of the positive Wassermann or Kahn test in the expectant mother should receive considerable emphasis with the student nurse. The prevention of congenital syphilis by early and intensive treatment of the mother plays a large part in the program for conservation of vision. A nurse aware of her opportunities for preventive work may reach beyond the walls of her hospital. Recently we received inquiry from such a nurse regarding possibilities for treatment for the family of a congenitally syphilitic little boy with a keratitis which had progressed so far that some impairment of vision was inevitable. The mother was again in early pregnancy and the nurse realized an opportunity for teaching and prevention. She made arrangements in a far distant county for continued treatment when the mother returned to her home. Unfortunately the student nurse has slight opportunity to observe patients during pregnancy and still less experience in teaching them.

### **Care of Eyes of Newborn Babies**

The care of the eyes of the newborn includes the instillation of a solution of silver nitrate or other prophylactic for the prevention of ophthalmia neonatorum, a legal requirement in the majority of states at the present time. The incompleteness of reporting of this

and all other reportable communicable diseases is a perennial problem of departments of health. Dr. B. Franklin Royer, in his recent paper on "Syphilis and Gonorrhea as Causes of Blindness,"\* says, "In 1907, just twenty-three years ago, 28.2 per cent of the admissions (to schools for education of the blind) were reported blind from birth infections of the eyes, while for the last completed year 9.3 per cent have been reported blind from this cause. The decline has been so steady and consistent, even when midwife procedure has been far from perfect, that the value of prophylaxis of the eyes of the newborn as a protective measure cannot be doubted."

In the city of Birmingham, Alabama, the incidence of ophthalmia neonatorum based on reported cases per thousand live births was .376 in 1921 as compared with .115 in 1930. Midwifery has been frequently charged with responsibility for the incidence of this disease; no licenses to practice midwifery have been issued in the city of Birmingham since 1921. In 1930, only 14 of the 5,199 live births were attended by some person other than a physician.

Contrasting the care of an ophthalmia case in the hospital with that given in the home under a public health nursing service brings out sharply the essential differences in the two services, in which the nursing techniques are identical. The hospital nurse is made responsible for the faithful and consistent carrying out of the treatment prescribed by the physician. The home nursing requires the teaching of some member of the family or neighbor the technique of the care of the infected eye, and effectually impressing the imperative need of frequent cleansing. Both are clearly nursing plus teaching. If either fail to be performed effectively, vision may fail forever for the newborn babe. The possibility of the calamitous outcome is undoubtedly an important factor in the methods used by the public health nurse with her unskilled pupil. The nurse's earnestness carries weight and the importance of responsibility is felt more or less deeply by the temporarily appointed assistant, although she may be illiterate and even profoundly ignorant. Practical necessity has compelled attempts to teach midwives the performance of aseptic services for the maternity cases under their

\* Syphilis and Gonorrhea as Causes of Blindness," B. Franklin Royer, M.D., *Journal of Social Hygiene*, March, 1931.

care and the instillation of silver solution in the eyes of the newborn as a prophylactic measure. The latter procedure appears to have been effective to a certain degree although the reasons for the technique may be still nebulous to the midwives. We recall the amazing response of the midwife as to whether she knew why the direction of the eye swab should be away from the nose rather than toward it. "Yes, miss," she answered, "so the baby won't get cross-eyed!"

### **The Eyes of School Children**

The service for the school child is perhaps less concerned with nursing procedures than for either the prenatal patient or the newborn infant, since situations requiring their use occur relatively less frequently. The nurse in this instance is dealing with apparently well children, with probably little or no preparation for her job. Few if any training schools for nurses have available for teaching and demonstration purposes a nursery with children of varying ages. If the nurse knows the normal behavior of little children and knows how to handle them successfully, she has probably learned it elsewhere than in the training school.

The development of a special method and of the successful program for testing vision of very young children is a conspicuous contribution within recent years of the National Society for the Prevention of Blindness. The skill required is of a very high order, the time and patience necessary are almost without limit. With the usual routine of the traditional school health examinations it is doubtful if many of the youngest children in school can have the benefit of this service, even after such careful demonstrations as have been made available. It is becoming a common practice in many communities for the teachers to test the vision of children of their grades. The Bureau of Education in the Department of the Interior of the United States, in its bulletin, "What Every Teacher Should Know about the Physical Condition of Her Pupils," prepared by Dr. James Frederick Rogers, gives detailed instruction to teachers on the technique of vision testing, and includes as an insert a part of the Snellen chart with instruction for its mounting and placing in the schoolroom. Special emphasis is laid upon the importance of observation of the behavior of the

child with respect to use of the eyes, or his complaints of feeling ill and the possible significance of these symptoms in relation to eye defects or disturbance of vision.

### **Training Teachers for Eye Inspection**

The program of health education in Jefferson County, Alabama, differs from the traditional school nursing program in this respect: its staff is composed of teachers instead of nurses who supervise and train in service the teachers of the rural elementary grades in the teaching of health. The subject matter has been supplied these teachers through extension courses, reading courses, bulletins and a manual of health education prepared by the director of the service, and the visits of the four supervisors. They are taught to recognize and to make use of school situations for practical application of health lessons, or conversely, a discussion is developed regarding the health lesson in a school situation.

The teacher under this program is encouraged to observe her children for deviations from the normal or usual behavior with respect to the use of the eyes continuously throughout the school year. Her observations are recorded on a chart or case record provided for this specific purpose. These are available for the information of the nurse who does the follow-up home visiting. They also afford a basis for discussion between nurse and teacher regarding the children thought to be in need of special help, the plans for the follow-up and, even more important, it is the nurse's opportunity to confirm the observations of the teacher, to correct them when necessary, to guide her in what to look for in further observations, and to encourage her in her new experience; in reality, to teach her in this very practical way through the study of case records and direct observation of the children under her care.

The use of the Snellen chart is not generally taught to the teachers in the Jefferson County system because of the practical difficulties of adequate supervision for a procedure requiring such exact technique. Accurate checking of the recorded findings would be almost impossible. The teacher's observation of the child's habitual use of the eyes, her report of the child's complaint of headache or pain, or the presence of redness or discharge, the

presence of squint, or of any other condition which may be considered a variation from the usual or the normal have been found during the past five years' experience to comprise a thoroughly practical program.

### **The Crossed Eyed Child**

One other service,—the last to be discussed in this paper,—which the public health nurse renders and may overlook if she lacks a prime motive or sound preparation is that in behalf of children of preschool age afflicted with strabismus. When the mother of such a child saves her egg money to pay jitney fare, walks a considerable distance to catch the jitney when it passes on its regular schedule, waits patiently if it is off schedule and late, and when she and the child are disgorged from its torrid interior at the bus terminal, in spite of her real terror at the noise, confusion and strangeness of the big city, she locates the dispensary, gets a sandwich for the child and a drink for herself at the small stand nearby, then patiently sits while the child wails with fatigue until the clinic is open, and she tells the attendant that the nurse told her she must see the doctor about the child's eyes, it is clear evidence of some very effective teaching on the part of the field nurse. The cases of strabismus in children under six years of age receiving proper examination and treatment constitute only a small percentage of those needing it, although the most casual observation may disclose the need. Powerful motivation is necessary to overcome the chronic inertia usually associated with this pathetic condition, if treatment is to be initiated sufficiently early to prevent permanent impairment of vision.

### **Conclusion**

The several services outlined above are only a few of the points of contact of conservation of vision in the field of public health; they serve to illustrate the reasons for teaching student nurses (1) conservation of vision, and (2) how to teach. What shall be taught and how it shall be taught, the content and the method, are matters to be determined by the training schools. In the very nature of the case, no training school can completely prepare the student nurse for her future professional experience. But is it too



much to ask that her education while in training shall be so fundamental in character and so concrete in clinical experience with both normal and abnormal conditions that she shall possess skill and appreciation in such degree to be acutely aware of the unexplored fields awaiting investigation and experience outside the hospital, and that she shall feel her professional education is a process of continuous growth?



# The National Society for the Prevention of Blindness

Lewis H. Carris

**T**HIS summing up, by its managing director, of the Society's aims, policies, and activities indicates the wide ramifications that are necessary to an effective program for preserving the nation's eyesight.

## Organization

**T**HE National Society was organized as the National Committee for the Prevention of Blindness on January 1, 1915, for the purpose of meeting a need felt by workers in the field of conservation of vision for some central agency to furnish information and assistance in carrying forward their work. It enrolls as active members and supporters physicians and laymen, men and women interested in public welfare, especially in public health movements, not only officials whose duty it is to take measures to conserve health, but also public-spirited humanitarians to whom the crime of letting children go blind who might be saved from blindness or impaired vision is an offence which calls for action looking to its prevention; in whom pity for the condition of sightlessness cries out for means to avoid it whenever possible. Half of all blindness is preventable; hence there is a field of activity for this Society in helping to create, by agitation and education, a condition of watchfulness and care that this great calamity to individuals and to society shall not fall upon them needlessly.

## Objects for Which the Society Works

All of the activities of the Society are based upon Article I, Section 2, of the by-laws, as follows:

"The objects of the Society are:

1. To endeavor to ascertain, through study and investigation, any causes, whether direct or indirect, which may result in blindness or impaired vision.
2. To advocate measures which shall lead to the elimination of such causes.
3. To disseminate knowledge concerning all matters pertaining to the care and use of the eyes."

In carrying out these objects co-operative relationships are established with agencies of society, official and volunteer, which have either a direct or an indirect responsibility for the prevention of blindness or conservation of vision.

It is understood that the National Society is a lay organization co-operating actively with the medical profession, particularly ophthalmologists, and with official and volunteer health agencies.

#### **Co-operation with State and Local Agencies**

The National Society has at all times extended fullest co-operation to local societies where they exist and has actively assisted in the organization of such local or state societies wherever the movements for such organization arise locally and give some promise of success. To date, it has not been the policy of the Society to set up state organizations which would be dependent upon the National Society either for their charters or for financial support, nor has there been any obligation on the part of state societies to furnish financial support to the National Society.

The Society has had before it continuously the question of policy as to the multiplication of local prevention of blindness units. There are arguments both for and against aggressive promotion of new agencies. So far the preponderance of argument appears to be in favor of a non-aggressive policy in this respect. Perhaps the determining factor is that activities for the prevention of blindness in a state do not always depend upon the existence of a local volunteer agency. On the contrary, our experience has shown that there are a considerable number of states lacking this type of organization which have progressed so far that there is at present probably no need for an additional volunteer agency concerned primarily with the prevention of blindness. This is true because the nature

of the Society's individual programs is such that responsibility for them can profitably be passed on to some existing state official or semi-official organization having authority to secure action. Some examples of this are the activities of health departments in the reduction of ophthalmia neonatorum and the vision testing in the schools under the direction of school or health officials. A weak local organization may be worse than none since it may effectively obstruct the work of other agencies in its territory and do little or nothing itself.

### **Co-operation with Ophthalmologists**

Whatever progress the Society has made in popularizing sound ophthalmological teachings has been due to the continual interest on the part of ophthalmologists themselves in the work of the Society. From communications, personal contacts in the field, and ophthalmological meetings attended by staff members, it is evident that ophthalmologists are gaining increased knowledge of the Society's work and are regarding it with approval. Among the co-operative activities in this field have been:

1. Preparation and distribution of literature of particular interest to ophthalmologists;
2. Provision of the Society's stereopticon slides and moving picture films for use by ophthalmologists in their lecture and teaching work;
3. Securing approval from ophthalmologists of recommendations and material offered by the Society in its work;
4. Enlisting the co-operation of ophthalmologists in the establishment of sight-saving classes;
5. Calling conferences of representative ophthalmologists;
6. Attending ophthalmological meetings upon invitation;
7. Securing co-operation of ophthalmologists in the promotion of medical social service in eye clinics;
8. Preparation and exhibition of material for national and state medical associations.

### **Co-operation with State and Provincial Health Authorities**

During the latter part of 1925, a co-operative relationship was established with the Conference of State and Provincial Health Authorities of North America through its Standing Committee on

Conservation of Vision. Two representatives of the Society were appointed as consulting members of the Standing Committee, with the Society acting as secretariat. One of the results has been friendly contact with all the state and provincial health officers enabling field representatives of the Society to secure favorable introductions and easy hearings on entering a state. Further, it has enabled the Society's staff to give advice to various states in the drafting of rules, regulations and legislative procedures affecting eye health, and has secured for the Society's representatives a place on each annual program of the major conference of the State and Provincial Health Authorities.

#### **Prevention of Blindness in Newborn Babies**

Among the special accomplishments of this joint relationship may be mentioned the twenty-page study on the "Prevention of Blindness in Newborn Babies," based on questions put to all state and provincial health authorities, all professors of obstetrics and all maternity hospitals in the United States and Canada, in 1926. This report was presented before the Forty-first Annual Meeting of the Conference of State and Provincial Health Authorities of North America during the American Health Congress held in Atlantic City in May, 1926, and was printed in the *Proceedings* of that meeting. Reprints of this were sent to each member of the Board and were utilized in propaganda work by the Society until recently, when a similar study undertaken in 1930 (and presented before the Forty-fifth Annual Meeting of the Conference held in Washington, D. C., in June, 1930) was published; reprints of this are now available and will be used for propaganda purposes for some time to come. This study was completed in time to make all the material available to the appropriate committees of the White House Conference on Child Health and Protection.

A current project of considerable importance is the conducting of a research into the pharmaceutical and chemical refinements that may make silver nitrate still more satisfactory as a prophylactic in the eyes of newborn babies. This work will continue for six months.

Another objective of the joint relationship under discussion is to secure renewed research into the etiology, epidemiology and public health control of trachoma.

### **Medical Social Service in Eye Clinics**

Though but recently included as a special project of the Society, activities for the development of medical social service in eye hospitals and clinics may be considered an outgrowth of efforts since the beginning to further co-operative relationship with agencies engaged in social case work. Through representation in the National Conference of Social Work and the National Social Work Council, as well as participation in state and local conferences, the Society has had opportunity to bring the question of prevention of blindness before welfare groups and to encourage a consideration of sight conservation measures in the formulation of their working programs. The present tie-up with the medical-social field may be classified as follows:

1. Since January, 1928, the Society has co-operated on a demonstration basis with the Massachusetts Eye and Ear Infirmary by granting funds for the employment of an additional social service worker assigned to work with glaucoma patients.

2. A co-operative plan with the Massachusetts Eye and Ear Infirmary has been developed whereby selected students are placed for social service training in eye work, on scholarship from the National Society; such students are to be placed at the termination of the training period in strategic positions for developing this pioneer work. While employees of the hospitals in which they are placed are under their direction, a certain amount of supervision of the work done by these students will be retained by the Society.

3. A national Committee of Medical Social Eye Workers was formed in June, 1930, for which the National Society is acting as secretariat in conducting an exchange of information and experiences between medical social workers engaged in eye service through the medium of a bulletin and through correspondence.

4. To meet a demand from hospital social workers in New York City, the Society has contributed this past season in arranging a series of fortnightly study conferences carried under the auspices of the Welfare Council, the North Atlantic Division of the American Association of Hospital Social Workers and the Associated Out-Patient Clinics. A program of eight formal conferences in which twenty-eight ophthalmologists participated preceded a discussion of the social aspects of the particular eye difficulties. The program

has also included interval round-table meetings for the social workers themselves and general meetings for promoting a more widespread interest in the subject.\*

### **Inquiry into Causes of Blindness in the United States**

The Society, in co-operation with the American Foundation for the Blind, has been taking steps toward obtaining better statistics of the blind. During the past two years there has been in existence a special committee consisting of representatives from agencies dealing with the blind and the prevention of blindness, the medical profession, the United States Census Bureau, statisticians, etc. The ultimate aim of this committee is to collect in some central registration office the fundamental statistical data regarding the blind and to keep this information currently up-to-date. As the material will be furnished by a variety of agencies doing work with the blind, it has been necessary to work out in advance definitions, schemes for classification, record forms, etc., in order that the data may be comparable. The work of the committee has reached the stage where it is ready with its tentative plans and outlines. At the biennial conference of the American Association of Workers for the Blind in April, 1931, the secretary of the committee was given an opportunity to present a brief report. This was favorably received and the Association resolved to appoint a special committee from its members to co-operate with the larger committee. It is expected that within a short time these preliminary plans will have been submitted to other interested groups such as ophthalmologists, for criticism and evaluation, after which the committee will proceed with some trial studies.

### **Co-operation with Columbia University in Study of "Eye Load" in Reading**

For some time members of the staff of the Society have been aware of the fact that certain of the practices, methods and materials used in reading are being generally accepted at present simply because their desirability has never been questioned or tested. Great interest was, therefore, manifested when a graduate student

\* Notes of the medical lectures and the discussion are available, and reports of the study group are disseminated with the hope of stimulating efforts in other cities.

at Columbia (who has subsequently become a member of the staff of Teachers College, with particular responsibility in research) called upon the Society for advice in working out a program of research studies on the effect of reading upon eye health. The student has the confidence and co-operation of a group of the professors of the University who represent the ophthalmology, optics, and physics departments as well as the department of education. These men are working closely with the research student in planning and executing the studies.

The preliminary library research to determine what is already available and what use can be made of this information has been completed and plans are under way to start one of the experimental studies.

The Society is giving some financial assistance and is serving in an advisory capacity.

### **Preschool Eye Testing**

The program for teaching the importance of detecting and preventing eye defects in the preschool age group is another for which the Society can justly claim credit both for pioneer effort and spread of the practice. The work began in 1925, when, at the request of the National Society, Dr. H. R. Skeel volunteered to make complete ophthalmological examinations of the children in a kindergarten in New York City. The main purpose at that time was to accumulate a group of case records that would give statistical data for guidance. The examination program was continued by a number of Manhattan and Brooklyn ophthalmologists until by the spring of 1929, nearly 1,000 records were available for study. Meanwhile it was found to be more efficient to have a nurse sort out the children requiring complete examinations by the ophthalmologist, and the nurse employed for this purpose was responsible for the development of an improved technique of testing the vision of little children. This method, being based on sound psychological principles, is so simple that after a little instruction it may be adopted by nurses or others who are accustomed to doing vision testing. At present the major portion of preschool eye work consists of demonstrating this method and other points of technique in checking the vision of the young



child before groups of nurses and teachers throughout the country. Plans are under consideration to check up the extent to which the teaching is being carried over into practice in communities where demonstrations have been given.

### **Eyesight of School Children**

The co-operative activities of the Society with the Joint Committee on Health Problems in Education of the National Education Association and American Medical Association, of which Dr. Thomas D. Wood of Columbia University is chairman, have continued. "Conserving the Sight of School Children," published for this Joint Committee by the National Society, has been in such constant demand that since its last revision in 1929 it has gone through two editions of 2,500 copies each. It is hoped within a reasonably short time that the report may undergo a further revision in the light of the extended experience which the Society has had in better opportunities now available to secure new statistics from which the basic study is set up. Such a revision will be largely the responsibility of the Society in all probability, and will require considerable research.

### **Sight-Saving Classes**

The number of sight-saving classes in the United States shows a steady growth, the number of classes on May 1, 1931, being 375.

The National Society for the Prevention of Blindness serves as a clearing house for information regarding all problems relating to the establishment and conduct of sight-saving classes. This program has been for several years one of the major responsibilities of one member of the staff and has consumed much of the time of others at particular periods. Since the National Society has actually aided in the solution of many problems of method, equipment, personnel, etc., and is constantly in intimate touch with a large proportion of the teachers and supervisors, its advisory service is in great demand. Further, a number of the Society's publications deal with the subject of sight-saving classes. These range all the way from the brief descriptive folders explaining their function and value to detailed instructions on methods of teaching,



equipment, etc. Frequent lectures and talks serve the same purpose.

One of the largest contributions of the Society has been the establishment of training courses for the prospective sight-saving class teacher. Almost all of these have been planned, subsidized to a greater or less extent, and conducted in whole or in part by the staff, at least during the early stages. Incidental to contacts with both the student teacher and the communities in which classes have been established, some assistance is given to school superintendents and teachers in placement of workers.

All sight-saving class activities are undertaken in close co-operation with educational and ophthalmological authorities. While the advantages of these classes to the children enrolled cannot be estimated, there is, in addition, a by-product of even wider import; because of the work of sight-saving classes, more attention than ever before is being given to the eyes of all school children. Teachers of normally sighted children have become vision conscious, better lighting systems prevail throughout school systems, and the eye load is lessened by clearer type in books and other material.

#### **White House Conference on Child Health and Protection**

The Society made its contribution to the work of the White House Conference through the service of two members of the staff on three of the sub-committees of the Conference. The subjects dealt with were the care and special class training of the child who is handicapped by defective vision and the prevention of such defects.

In a report of approximately 200 pages concerning sight-saving classes were assembled many facts regarding legislation, financing, standards, etc., which had not previously been available anywhere. While gathered primarily for the use of the White House Conference, the data are extremely valuable to the Society in its own sight-saving class program.

One outgrowth of the Conference has been the introduction into Congress of a bill to improve the welfare of the handicapped. There also are indications, through conferences that are being called, that states and local communities are giving serious consideration to the recommendations of the Conference.

### Eye Accidents

Seeking elimination or reduction of the accident hazards which cause blindness and other serious eye injuries in industry and in public and private life, the Society co-operates with national and local agencies engaged in accident prevention including the National Safety Council, the American Society of Safety Engineers, the American Museum of Safety, the American Federation of Labor, state industrial commissions, central labor councils and local safety councils. These agencies, while providing leadership for the general safety movement, welcome the assistance of this Society in the campaign against the specific group of hazards causing eye injuries.

Among the Society's activities in this direction are: (1) distribution of the book *Eye Hazards in Industrial Occupations* to safety engineers, industrial executives, governmental officials, industrial physicians and others; (2) participation in joint conference and committee work of the aforementioned agencies when conservation of vision is concerned; (3) addresses by staff members to groups professionally concerned with or otherwise definitely interested in elimination of eye hazards; (4) advice to individual inquiries, personal and by correspondence, on methods of protecting the eyes of industrial workers; and (5) publication of information concerning the nature, seriousness and means of eliminating accident hazards.

Illustrative of the latter activity is the publication of *Eyes Saved in Industry*, which was widely abstracted and commented upon in the industrial and lay press. A more recent activity of this type is the formulation of a self-appraisal for executives concerned with eye protection in industry, requests for which have been received from all sections of the country and which is rapidly being looked upon as a program for thorough-going eye protection in industry. There is, however, not only room for but urgent need of wide expansion of this work in industry and on behalf of the reduction of eye accidents outside of industry.

### Publications

The various publications of the Society are designed and, it is believed, are meeting the needs of popular and general eye health

education. The publications may be divided into two groups: (1) those which are used for disseminating prevention of blindness and sight-saving information to the general public through popular presentation, which are on hand for distribution, and (2) those publications which are published in limited numbers to assist in some special project or to meet the needs of some particular group of workers. As the movement for prevention of blindness has grown, there has developed a group of key people among public health workers, welfare workers, industrialists, educators, and safety engineers, who are especially interested in some phase of preventing blindness and saving sight. It is felt that if the key people are served by special pamphlets, a maximum number of the lay public will be reached, since these people act as agents in teaching prevention of blindness and saving sight.

It is to meet the needs of these people, too, that it was felt advisable to create the new publication, *THE SIGHT-SAVING REVIEW*, which contains popular presentations of the various aspects of saving sight. That this is actually meeting the need may be evidenced from the growing list of subscribers.

### **Publicity**

As part of its work of educating the public regarding the chief causes of blindness and vision impairment, the Society maintains continuously an aggressive but discriminating publicity campaign. This is done through the press, radio and other media reaching large audiences. Mere exploitation of the Society's name, however, is avoided. Editorial comments on the possibilities for eliminating the various hazards to sight are obtained through quiet but carefully planned efforts. The Society seeks not only to acquaint the general public with the movement for conservation of vision, but attempts particularly to bring its activities to the attention of special groups, such as physicians, teachers, social workers and industrial executives. The Society has frequent occasion to assist communities with publicity in connection with their local "prevention of blindness weeks."

### **Annual Conferences**

The National Society for the past several years has held annual conferences, some of them extending over a period of three or four

days. Two of these conferences have been held away from New York: the 1927 Conference in Chicago and the 1929 Conference in St. Louis. It is believed that these annual conferences have made a marked contribution to the work of preventing blindness and conserving sight and that they have served to enlist the interest of large numbers of ophthalmologists and educators. The pre- and post-conference activities have enabled the Society to initiate valuable and effective contact with state and local agencies.

### **Territorial Responsibilities**

The Society is constantly being confronted with its responsibilities in Porto Rico, Alaska, Hawaii, the Philippines and the Virgin Islands. Tentative plans are being made for a visit by a representative of the Society to Hawaii early in the coming year. Representatives of the Society visited Porto Rico some nine years ago, with very satisfactory results. During the past winter a member of the Board of Directors spent a month in Porto Rico in the campaign for child health and while there had abundant opportunity to observe conditions and to discuss with Governor Roosevelt ways and means for the conservation of eyesight. Indications are that the need for a practical program for the conservation of vision is greater in the dependencies of the United States than anywhere in the states themselves.

### **International Work**

From the beginning of the work of the Society, numerous requests have been received from various parts of the world for information concerning the activities of the organization. The Society consequently took a leading part in the recent organization of an International Association for Prevention of Blindness, whose headquarters are in Paris and whose present existence is considerably aided by the League of Red Cross Societies. As the result of this new international agency, a greater interest in the prevention of blindness is being manifested throughout the world.

## The Eyes in Nephritis and Diabetes\*

Thomas H. Curtin, M.D.

**B**Y looking into the interior of the eye during a routine ophthalmoscopic examination, the oculist may find a condition which reveals that the patient has Bright's disease. Diabetes, likewise, is sometimes discovered by symptoms disclosed in an examination of the eyes.

### The Retina—Its Functions, Anatomy and Physiology

**I**T IS impossible to say very much in the short time allotted to me on this very large subject which comprises a great many deeper eye conditions that we find. Retinitis is a term which is very general, as are all these "itis" terms—peritonitis and pleuritis, and so on. Retinitis simply means an inflammation of the retina. These terms are rather indefinite and we should really have a better nomenclature than we have today.

The retina, as you all know, is the interior membrane lining the posterior portion of the eye. It is simply an expansion of the optic nerve fibres. The optic nerve penetrates the eye a little to the inner side of the posterior diameter and there expands itself and lines the entire interior of the eye, going forward as far as the ciliary body and ending in the ora serrata.

This retina, I might say, in the living eye is purple-red which bleaches on exposure to intense light. In death also we find the retina becomes white. The coloration of the retina is due to what we call the visual purple. In the direct axis of the eye in the retina is a small spot one or two millimeters in diameter which is called the macula. In the center of this spot is a small depression called the fovea centralis. All distinct vision is made in that small area of the retina.

\* Presented during the series of study meetings on Medical Social Service in Eye Clinics arranged by the Committee on Development of Social Service in Eye Clinics of the Medical Social Service Section of the Welfare Council of New York City.

The other portion of the retina receives impressions but they are not distinct, and is what we call field vision. The vibration from the light striking the retina is transmitted through portions of the retina, mostly the layer called the rods and cones, back through the optic nerves and optic tracts and to the brain, where it is transmitted into a form called light.

Of course, we have other impressions which have to be transmitted to the brain in order to interpret images, so when we say we see in the eye, it is untrue. We do not see in the eye itself. We see the impressions on the retina of the eye which are transmitted back through the optic nerve and optic tract to the vision area and there these vibrations are interpreted into sight. The vision center is located in the posterior portion of the brain in the occipital lobe.

We have cases of blindness, as you all know, where the eyes are absolutely intact. The optic nerves are intact, and sight has been lost from a skull injury or a head injury. During the late war we saw at least three such cases.

The optic disc is seen with an ophthalmoscope as a reddish-white round disk situated to the inner side of the macula. It is where the optic nerve penetrates the eye. There can be seen the blood vessels of the eye, the arteries, the veins.

The retina of the eye is supplied by one blood vessel called the central artery of the retina which penetrates the nerve a few millimeters back before it enters the eyeball. It then goes in through the nerve and on the disc it divides into two portions, an upper and a lower, and then into a right and left, giving off branches like a tree. In this way the retina is nourished, with the exception that we have a few small vessels that come from the ciliary arteries penetrating the eyeball which supply the macular region. However, as a rule, if we get an obstruction or destruction of the central retinal artery we find the person becomes absolutely blind except in a few cases where the ciliary vessels are sufficient to nourish the macular region, and there the individual may have a small amount of sight which will be direct. That would be telescopic, small in area.

The minute anatomy divides the retina into ten layers. The rods and cones are the most important and we find in this macular region of the eye it consists almost entirely of these rods and cones.

### Disturbances of the Retina

Knowing the retina, its function and a little of its anatomy and physiology, we come to affections of the retina, inflammations and circulatory disturbances. You may have a simple inflammation, an edema of the retina, where you simply see a slight amount of haziness of the retina itself and the edges of the disc blurred. This is of no great moment, and is found usually in cases of people who are applying their eyes too assiduously or exposing them to intense light.

If this goes on, we find the inflammation involving the deeper layers of the retina and it becomes a serious condition. Inflammations of the retina are described according to their causation or, as we say, etiology—as albuminuric, diabetic, leukemic, syphilitic, or septic.

I will confine my few remarks this afternoon to inflammation of the retina. I might say that we have a very peculiar condition of retinitis called pigmentary degeneration, so-called night-blindness, where we find the retina starting at the periphery and gradually going toward the center, of black, cinder-like objects, described more like bone corpuscles, as you have seen them under the microscope, and finally coming down toward the optic nerve in the macular region. This is also accompanied by atrophy of the optic nerve, which becomes whiter and whiter as time goes on. It is rather a long drawn out affair, lasting years; the vessels become very small, very fine, and the pigmentary change ends usually in blindness.

The causation of this pigmentary degeneration, or retinitis pigmentosa, the technical name for it, has been absolutely undecided. A great many authorities claim it is a familial affection and is found in people who marry relations. They contend that it is due to consanguinity of blood, mixing of blood of too close types, that is, first cousins, and so on. It is said to be more prevalent in small isolated communities. From my experience this holds true in a great many cases, although we find a great many cases where we cannot trace any consanguinity of blood. However, one usually finds that one or two of the family will be affected. This condition is of slow duration. It goes along, as I said, sometimes for years, but eventually ends in blindness, and to date we have absolutely no means of combating the disease.



### **Albuminuric Retinitis as a Symptom**

Albuminuric retinitis is rather common. Authorities claim it is found in 30 to 40 per cent of cases of nephritis, that is, Bright's disease, usually in the so-called interstitial type, the small kidney. Of course, some of these cases do not show the gross lesions that I will describe later, but they claim in 30 or 40 per cent of nephritic cases, some disturbance in the retina or the circulation of the retinal vessels can be demonstrated.

**Nephritis.**—Discovery of nephritis may be made simply by the ophthalmoscopic examination. A person comes to the oculist to have glasses fitted. In his routine examination the oculist makes an ophthalmoscopic examination, which means he looks into the interior of the eye, and may find certain changes in the eye grounds which, in some cases, make him positive, and in other cases, make him suspicious of nephritis.

I should like to point out to social workers in clinics the importance of having eyes examined by an oculist or at some eye clinic, some special hospital or some clinic attached to one of the big hospitals, because in an examination of the eye it is absolutely necessary that the ophthalmoscopic examination be made. In fact, we are talking to the general doctors and internists about the value of proper eye examinations, because numerous diseases can be determined through this examination, and the interpretation of the findings by a competent oculist. I want to accentuate the fact that for proper eye examination the patients should be referred to the oculist, whether he be in his private office or whether he be attached to one of the various hospitals or clinics, of which we certainly have enough today.

**Retinitis in Pregnancy.**—We may find blindness coming on during pregnancy, usually in the later months of pregnancy. That is also called albuminuric retinitis. These cases show practically the same picture that an albuminuric retinitis will show. You will find the retina will show large white splashes, particularly around the macular region where it forms into a star with flame hemorrhages going off from the vessels.

In albuminuric retinitis the prognosis as to life is usually of short duration. You can usually predict with the lesions of an albuminuric retinitis that the patient will die within two years; but in



the albuminuric retinitis of pregnancy, this is not true, because the condition usually clears up after delivery. Of course, the danger before delivery is of eclampsia.

We also find the same condition as in childbirth, in cases of scarlet fever which is complicated with nephritis. It usually clears up after the patient recovers from the scarlet fever.

There is another condition resulting in blindness where the eye grounds disclose nothing except probably congestion of the vessels or redness of the disc. That is caused by uremic poison, and these patients, of course, show a more general sick condition—vomiting, and sometimes delirium, going into coma. In the examination of the eye grounds they show nothing abnormal because it is a toxic amblyopia, an involvement of the brain itself from the uremic poison.

### Diabetic Retinitis

Next we come to diabetic retinitis. It is usually one of the late manifestations of diabetes and, like nephritic retinitis, is usually found in both eyes. It is not as common as albuminuric retinitis and is ascertained in looking into the eye grounds, not by the form of the exudation in the macular region and flame hemorrhages, as we find in the nephritic retinitis, but usually by more hemorrhage, more flat and round exudations located around the macular region, but which may involve the entire eye grounds.

We used to look upon (I used to, at least) diabetic retinitis with the same grave prognosis that we looked upon nephritic or albuminuric retinitis—that death will come within one or two years. But since the use of insulin, I am very glad to say I have seen a great many cases now living for five or six years, and the eye ground condition has certainly improved.

I might mention here, incidentally, the first symptom of diabetes may be the fact that people require a change of glasses. They usually become myopic due to the amount of sugar that is in the blood. That is something for a social worker to look out for in patients requiring frequent changes of glasses—the suspicion that they may have diabetes.

You can see from this talk on retinitis, just taking up the albuminuric and diabetic, that diseases of the eye for the most

part are simply local manifestations of some general systemic disease, such as nephritis or diabetes or of some focal infection, as bad teeth, tonsils and sinuses. The oculist must not only know the eye condition, but he must also know the general condition of the body which may be the causation of these various inflammations. It cannot be too greatly emphasized that social workers should see that their patients, the people in whom they are interested, have their eyes examined properly by the oculist.

### **Social Service in Relation to Nephritis and Diabetes**

In treatment of conditions like nephritis and diabetes, we oculists realize that we are not specialists in internal medicine, although we have a good general understanding of these conditions and how they should be treated. In our hospital, the Bronx Eye and Ear, we have a close association with a general hospital. We have a connection with Lincoln Hospital, and one pathologist of our hospital happens to be one of the visiting medical men of Lincoln Hospital. We refer our cases to the medical department of Lincoln Hospital through our social service.

When we refer cases to the social service, we expect a special book to be kept of the social service cases requiring special treatment. The doctors in the clinic and hospital are too busy to follow up these cases and it is necessary to have somebody to follow them up, to find out what is being done in the general hospital for the cases.

I might mention that some of these diabetic cases are referred to special diabetic clinics which we have today in many hospitals. But in most cases, patients do not return again to the eye clinic, so that it is the duty of the social service worker to see that these cases are followed up and that they do return to us now and again for further examination. This is a real necessity, not only for the patient's good, but for our own interest, in order that we can see what influence our treatment has on these various diseases. As you know, most of the treatment consists of diet, proper living, and proper medication. The doctor can give the medication and give the instructions regarding the diet and proper living, but we must have some one to check up those conditions and that is the social worker.

**Summary of Discussion**

That each patient whose eye difficulty is caused by a diabetic condition should be kept under close surveillance by the social worker in order that there be no lapse in the insulin treatments was stressed, as was the fact that in a number of cases, operable complications such as cataract should be cared for and the patient's co-operation secured. The reported increase of diabetes in New York City indicates a vast opportunity for social service in this field alone. With retinal disease, frequently the sole symptom noted by the patient is an apparent need for change of glasses. He therefore comes to the eye clinic which must, in turn, refer him for general medical care wherein lies the opportunity for improvement.

## Lighting the Home for Health and Happiness

Winifred Hathaway

**I**N clear and practical fashion, Mrs. Hathaway explains what the housewife and her husband should do, in this age of "psychological influences," to avoid the strain on eyes and disposition which comes from faulty illumination.

**H**EALTH and happiness are affected by minor irritations in larger measure than is usually realized. The wrong slant of light on the work, reflections from a glass-covered desk, or the difficulty of shaving where the reflection and not the face is lighted, may lead to unsuspected difficulties.

The eye is a long-suffering organ of the body. It will often stand, apparently without complaint, more abuse perhaps than any other part, but that does not mean it is not registering its unhappiness. Any one of a number of ills, having no apparent connection with the eyes, may be the result. Nausea, headaches, indigestion, malnutrition, and nervous disorders may have their origin in, or be contributed to, eyestrain.

Naturally, the best type of light is sunlight—free open sunlight that brings health-giving rays to the body. This means open windows in the home, for these rays do not pass through ordinary window glass. In many homes, however, the ideal natural lighting cannot be obtained. The problems of artificial lighting can be more easily solved.

### General Home Lighting

Several factors must be taken into account in any consideration of illumination. The light must be adapted to the type of work or recreation for which it is needed; there must be an adequate amount of light; glare must be eliminated; the type of lighting

should be in harmony with its surroundings; and the illumination should be well distributed.

For those who are fortunate enough to live in a house, outside lighting should be given careful consideration. What is more welcoming than a pleasant glow of light! Lanterns on either side of the door will not only welcome the homecomer and the guest, but will help to prevent accidents. If there cannot be two lanterns, one hung above the center of the door will help greatly. In any event the unit should be so placed that if there are steps they will be well lighted. Dust collects quickly on outdoor lighting units; hence special care must be taken to select closed luminaires so that dust and insects may not accumulate on the inside of the globe and interfere with obtaining desired results.

It is a good plan in the wiring of the new house to arrange for outlets on the piazza so that on occasions for special celebrations outdoor illumination may be easily obtained by plugging in a row of small Christmas bulbs. If we are to bear in mind health and happiness, there must be the same welcome in the hall as on the outside of the house.

There have been many discussions as to whether overhead lighting is fashionable. It is probably not necessary in any part of the house to have brilliant overhead illumination. However, there are times when general lighting is needed in almost every location. It facilitates good diffusion, so that the eye will not be unnecessarily fatigued by spots of light against dark backgrounds. The inner frost lamps now on the market do not collect dust as did the old type lamps, yet they cut off only a very small percentage of the light. It was never intended, however, that these should be used without shades. Hence, if overhead lighting is used in the hallway and other locations in the home, the lamps should be properly shaded in harmony with the surroundings. If there is a coat closet in the hall, it will certainly diminish minor irritations if this is lighted with an overhead unit. This may save many missteps and possible accidents, and will surely do away with the irritation of searching in a dark closet for the required article. In the hallway, torch lamps on either side of the hall table give a very pleasant reaction. Switches should be so arranged that the light on the porch can be turned on from the hallway, and also the upper hall-

way illuminated from the lower. There should be corresponding switches in the upper hallway so that the lower light may be turned on or off from above.

### **The Kitchen**

The kitchen is probably the most used room in the house and is usually by far the worst lighted. An unfrosted bulb suspended from a cord causes glare and shadows, two of the most undesirable qualities of bad lighting. The ideal illumination for this room is a totally enclosing ceiling fixture of translucent glass. The size of the lamp within will depend somewhat upon the size of the kitchen. A large enough lamp must be used to light every part of the room, and the size of the globe must be determined by the wattage of the lamp. In addition to the overhead lighting it is a very great convenience to have side lights at the sink and a light over the stove. These will make for more comfort to the worker, less breakage of dishes, and less burned food. If there is a breakfast nook, this, too, should be lighted for comfort. A totally enclosing globe or a hanging open bowl may be used. If the latter, it should be hung at a distance of 26 inches from the table. If hung lower it interferes with seeing the person on the opposite side of the table; if higher, there is apt to be a glare. Naturally, in wiring the house, convenient outlets will be put in the kitchen in order to attach the electric iron and other useful appurtenances.

### **The Dining Room**

If the dining-room serves no other purpose than for the customary meals, a lower wattage will suffice than if it is used for other activities. Again, overhead lighting may be needed for certain functions; for instance, where the table is considerably enlarged to greet a large company of guests. Here again, as in the breakfast nook, the open translucent globe appeals to many people, but the same care must be taken in hanging. Side brackets are always attractive, but it must be remembered that these are more for ornament than for their light-giving qualities. They must, of course, be properly shaded in harmony with the room. A very beautiful arrangement of dining-room lighting is obtained by hidden lights placed in a recess running round the room near the

ceiling. This, however, is only for those who can afford a real luxury, for both installation and upkeep are exceedingly expensive. Naturally, outlets for the coffee percolator, waffle iron and toaster will add greatly to the family comfort and happiness.

### The Living Room

How many people have trumped their partners' ace at the bridge game while attempting to play under the strain of inadequate lighting! The bridge lamp is exceedingly useful in the living-room, but only those at whose elbow it is placed can see well enough by its light to enjoy their game. The old-fashioned parlor is no longer in existence. It has changed into a real living-room. Hence the comfort of all must be considered. Overhead lighting may seldom be needed, yet the bridge party and the reception sometimes require it. It is well, therefore, to have a center unit for an ordinary size room, or two units for a room too long or too wide to be adequately lighted by one. The table lamp is a great convenience in the living-room, and there should be a sufficient number of floor lamps to enable each member of the family to read, study, or carry on other occupations comfortably. This presupposes plenty of floor or wall outlets. The placement of these lamps is an important matter. They should be so arranged that the light comes from the left rear in the case of a right-handed person, and from the right rear in the case of a left-handed person. The shades of these lamps will of course be chosen in harmony with the color scheme of the room. Two points must be taken into consideration: their appearance during the day and their appearance when lighted. Red lampshades are being little used, since red is a very exciting color. Blue is avoided because of its depressing effect, but if either of these colors is desired, compromises may be made. Thus, the red may become a rose that will blend with other decorations, yet have no unpleasing effect upon the eyes or the personality. Blue shades may be used if lined with rose or gold, thus neutralizing the depressing effect. Many housewives find tones of yellow exceedingly suitable for the living-room. For decoration there may be sidelights, as in the dining-room. To procure an exceedingly pleasant effect, balls of light of very low wattage will be found of interest, especially when they are upheld by an artistic figure in



bronze or copper. The French people excel in this form of lighting. It is not expected to be used for illumination, but merely to add a pleasing spot of colored light. The housewife, however economical, does not like to turn off all the lights in the living-room, even when it is not in use. One of these exquisite decorative pieces, placed over the fireplace, will produce sufficient light to give a pleasing glow, yet will consume little power. Our French neighbors have also gone one step further by making a small depression in the globe and placing therein a few drops of perfume.

### **The Bedroom**

Overhead lighting is also advisable in the bedroom. This, too, may be of low wattage, since it is well to have other parts of the room illuminated for special purposes. We sometimes wonder why people appear with blotches of powder on the face, or rouge inartistically applied. Very often it is because the mirror is inadequately lighted or the units so arranged that the light is thrown on the reflection in the mirror and not on the face. The difficulty may arise from the fact that there is a light unit on but one side of the mirror, so that the opposite side of the face is in shadow. Lighting units on both sides of the mirror will obviate this difficulty. A floor or table lamp placed in such relation to the comfortable chaise-longue that reading or sewing may be done with ease will be a great addition to bedroom illumination. There are now on the market very delightful bed lamps. Some of these are so arranged that they may be moved readily from one position to another. However, the person who finds delight in reading himself to sleep should bear in mind the physician's warning that bed is a place for sleeping rather than for reading. Even though the lighting be ideal, reading in bed is an exceedingly bad habit, unless one sits in an upright position, since only in this posture can a correct muscle balance of the eyes be maintained.

### **The Bathroom**

In the bathroom the general principles of good lighting must be borne in mind. An overhead light is excellent, especially if but one light can be afforded. It is well, however, as in the bedroom, to

have both sides of the mirror illuminated in such a way as to throw the light on the face. Many a man has had his whole day's program disrupted by the irritations of shaving under inadequate light. It must be remembered that it is the face and not the reflection in the mirror that is to be shaved.

For children's rooms there are all sorts of pleasing arrangements of light. If floor lamps are used, it must be remembered that the little folks need shorter stands so that the light may be thrown on what they are doing. If these rooms, however, are used as play places, floor lamps are not advisable. A pleasing unit of overhead light and wall brackets will give the desired results.

### **The Cellar and Laundry**

In the household the illumination of the cellar and laundry will not be forgotten. It is impossible to tell how many people have been seriously injured by falling down cellar stairs because of improper illumination or because the switch was not at the top of the stairs so that the light could be conveniently turned on. Good overhead lighting of the cellar is just as important as in other parts of the house. In the laundry, units similar to those in the kitchen, with outlets for electrical appliances, should be arranged.

Those who are not fortunate enough to live in a house need not be discouraged by their lighting problems, since the principles are practically the same, even in the tiniest apartment. Those who cannot afford expensive shades need no longer bear the torture of unshaded electric lamps. A piece of common wrapping paper, cut two inches deeper than the lampshade and two and one-half times its circumference, may easily be brushed over with boiled linseed oil, obtainable at any paint store, and be thus converted into so-called parchment paper. It is necessary to stand this on edge and allow it to dry 24 hours before using. Pleated shades are exceedingly easy to make from this. The paper should be folded in half, each half again in half, and so on until all is pleated to the desired width. Holes may be made with an ordinary punch through which ribbon or cord may be drawn, and the shade may be held on the wire frame by making a half punch on the inside of each pleat near the top. Into this row of half punches the frame will easily fit. Decorations for such frames are exceedingly simple.

It will be seen, then, that the chief underlying principle of illumination is well distributed adequate light without glare. To be sure, it is sometimes difficult to tell just what constitutes an adequate amount of light. A foot-candle is taken as the unit of measurement of light, just as an inch or an ounce may be considered a unit along other lines. On a bright sunny day in summer on the golf course there are about 10,000 foot-candles of light. Under the shade of a tree on the same course there are about 500 foot-candles. It is surely, therefore, not too much to ask that from 10 to 35 foot-candles of artificial light be provided within the home. There is little probability of getting too much light; the avoidance of glare is the important consideration. Glare may be defined as any form of illumination that causes discomfort to the eyes.

To sum up, lighting the home for health and happiness, if these principles of adequate light without glare are put into effect, the eyes will be enabled to render their full service, and unless there is some difficulty with them, to render it gladly and willingly. If beauty and harmony are borne in mind in the choice of the type of unit and the color scheme of the home, the æsthetic sense will be gratified and the home should be a pleasant place in which to live. And, who knows, perhaps as these minor irritations are smoothed away, the dispositions of those making up the household will become so much brighter and sunnier that the home will be illuminated from within.

## Responsibility of New York State to Prevent Blindness

Grace S. Harper

**W**HAT a state can do to protect its citizens from blindness is described in detail by Miss Harper, who relates the experience of New York. State commissions for the blind, departments of health, or other state bureaus responsible for such work, may find here, perhaps, a few suggestions for enlarging their programs.

### Formation of Prevention Department

**W**HEN a state department is first created to help its blind citizens, the existing needs of the blind are paramount. As a large percentage of blindness is preventable, the state is soon confronted with the duty to prevent the loss of sight as well as to ameliorate the condition of those who are already blind. Education is necessary here, as in other fields of medical and social progress, and though slow to show results certain definite gains may be seen over a period of time.

For many years the New York State Commission for the Blind has arranged for eye examinations and has helped the individual threatened with loss of sight. During this time, evidence of a wider responsibility towards prevention was shown by the establishment of an eye clinic at Sing Sing prison and the assignment of three social service nurses to eye clinics in New York City, Brooklyn, and Syracuse. This demonstration of follow-up care on eye cases resulted in two of the nurses being taken over by the hospitals. Over the same period, social case work was recognized as a function of visiting home teachers and the medical significance of eye conditions in relation to their work was taught to the teachers on the staff. This service is now showing results. About 500

signed medical reports are obtained by home teachers, annually, in addition to the medical social work done by consultant nurses. Arrangements for operations and treatment are carried out on the recommendation of eye specialists. This service, however, limited the undertaking of the Commission to what its own staff could accomplish without creating local initiative and responsibility within the public health and educational groups.

Recognition of need for preventive work as a major responsibility took definite form in 1927 when a special Department for the Prevention of Blindness was organized under the direction of Miss Sarah A. Clendinning, R.N. Aims for a state-wide prevention program were outlined as a guide, but as the number of workers was limited to a director and two consultant nurses, it was decided to emphasize selected educational measures and not to undertake too ambitious a program at first.\* The third year of this more aggressive effort to decrease blindness in the state has now come to a close. Such progress as the Commission has made towards its aims and general educational work has been critically reviewed. Certain definite needs are clearly indicated for future development. As will be seen from the following record, emphasis has been laid on the education of professional workers in the fields of health and education; sight conservation work for school children, including instruction in eye testing for those of preschool age; and intensive effort to reduce infant blindness.

#### **General Educational Work and Assistance to Professional Groups**

Addresses and short talks on eye conditions which may result in blindness, and measures for prevention, have been given to groups of health officers, public health nurses, students, women's committees and the general public. Fifty-six groups have been reached in this way, representing approximately 2,207 persons. These talks on prevention referred to prenatal care as contributing to normal vision at birth, the seriousness of "Babies' Sore Eyes," simple explanations of certain eye diseases and the need for early eye examination.

At the request of the State Department of Education, six lectures have been given at State Teachers College, Buffalo, for two

\* See Annual Report New York State Commission for the Blind, 1929.

successive years. Student nurses and hygienists have attended these lectures which in the first year included the anatomy of the eye, eye hygiene, eye diseases which may result in blindness, demonstrations of eye testing of small children, and procedure for the selection of children for sight conservation classes. The second year, a similar course was given jointly with the National Society for the Prevention of Blindness. For two successive years, lectures have also been given to the senior student nurses at the Physicians Hospital, Plattsburg.

The state is districted into 15 public health units comprising 57 counties, exclusive of New York City. Eleven of these geographical health units have been reached through the annual institutes for public health nurses and in smaller conferences. At these institutes, workers from 30 counties have been present, including doctors and social workers. School nurses have manifested great interest and have later sought advice regarding eye conditions in their special localities. The subject has also been presented to other groups such as the State Nursing Association, Committees of the State Charities' Aid Association, and 13 audiences representing the general public.

**Educational Literature.**—Pamphlets on the care of the eyes have been circulated throughout the state. By permission of the National Society for the Prevention of Blindness, reprints of several of their publications have been issued. These include, "Care of the Eyes," "Eye Troubles in Middle Life and Later," Dr. Park Lewis' book *What Every One Should Know About Eyes*, and others. A total of 53,643 pamphlets and folders have been distributed at conferences and through other sources.

### **Sight Conservation Work for School Children**

**Demonstrations of Eye Testing.**—Until a short time ago eye testing was not considered practical for very young children because of their inability to read. A fine technique must be used with a special understanding of the child's mental attitude in order to secure accurate results. These demonstrations, which were first started as an exposition of the technique of eye testing have gradually been changed to instructional service which prepares a nurse or teacher to make the tests herself. In simple demonstra-

tions, the equipment used is explained and children's eyes are tested as an example of procedure. Sixty-five of these have been given during which 1,466 children were tested. This included two extended trips with the Type "C" Traveling Clinic of the State Board of Health. This traveling clinic functioned in three counties over periods of twenty-two days and one month respectively; 984 children were tested. Health officers, physicians, public and private nurses, and parents were present. In 21 of the localities where demonstrations were given, requests have been received for further assistance and eye testing of kindergarten and first grade pupils has become a part of the school program.

When instruction in eye testing is given to nurses or teachers, the equipment and methods are explained and the student takes part in the testing, receiving correction and help in connection with the proper procedure on each case. The process is repeated until the student can satisfactorily test a child herself, under the supervision of the Consultant Nurse. Fewer children are tested during an instructional period than at a demonstration, and much more time is necessary. Twenty-seven instructional periods have been given at which 353 children were tested. In all of the localities where individual instruction has been given, eye testing has been continued as part of the annual school program.

**Sight Conservation Classes.**—The Commission has co-operated with the State Department of Education in securing lists of children eligible for sight conservation classes. Special work has been done in Nassau County where every superintendent and district superintendent was seen. These 25 school officials presented 165 records of children with eye conditions, from which eligible cases were selected. A history was obtained for each child and many eye examinations, also mental and physical examinations, were necessary in the process of elimination. The number was reduced to 59. This group was re-examined by an eye physician, for final recommendations. A sight conservation class will be opened in the fall. This will be the first county sight conservation class in the state.

As the result of a survey instituted by the Department of Education in Oneida County, children having visual defects were referred to the Commission. Three hundred children were given eye ex-



aminations, 54 of which received intensive follow-up care. As a result of this work a sight conservation class will probably be established.

Two other city surveys are in process along similar lines with a sight conservation class in view.

**Clear Type Textbooks.**—A number of school children having seriously impaired vision and who are unable to keep up with their regular grades are referred to the Commission from various sections of the state. These children are given eye examinations and if vision is such that they may be retained in the public school, and where there is no sight conservation class available, clear type textbooks are secured. These cases require one or more visits to the school. The principal and the teacher are shown the benefit of an adjustment which permits a pupil to remain in normal surroundings in spite of poor vision. As these children require more than merely the supplying of clear type books, and as the numbers referred from rural sections increases, the Commission feels strongly that there is a greater piece of work to be done with this group.

**Adjustment of Lighting and Seating in Classrooms.**—At the request of school officials lighting methods and seating arrangements in classrooms have been observed and suggestions given for more suitable arrangements. These requests were an outgrowth of contacts made at eye-testing demonstrations and sight conservation surveys.

#### **Co-operation in the Establishment of Eye Clinics**

In counties where there is no free eye service available an effort has been made to stimulate interest in the need for eye clinics. At the close of the year final arrangements were completed for the inclusion of an eye clinic in a new county hospital in the south-eastern part of the state. Interest and support were obtained, in part, through talks given by the Director before the County Medical Society, to ophthalmologists and local welfare groups. In two other counties the Commission has been asked to assist along similar lines.

#### **Study of Ophthalmia Neonatorum Cases**

By arrangement with the State Department of Health, ophthalmia neonatorum cases are followed up by the Commission for

the Blind after an initial visit has been made by the Department of Health. The Commission has secured important information in connection with these cases, covering medical attention at birth, the use of a prophylactic, delays or failure to arrange for hospital care, too early discharge from hospital, and other factors which influence the care of these infants.

During the three-year period 163 cases have been registered. In the first year seven babies became blind. In the second year three babies lost their sight completely; a fourth lost the sight of one eye; two have only partial vision. Fortunately no baby has lost vision from ophthalmia neonatorum during the year just completed. The unremitting concern of the Department is partly responsible for this record for the third year. Several babies were re-hospitalized when visited, because of too early discharge and without special nursing care being provided in the home. The Commission feels gratified to have made a beginning toward the adjustment of difficulties which have combined to cause damaging results in some of these cases. The weaknesses in procedure have been found and point the way to correction. As there were a number of babies for whom positive smears were obtained, who were not hospitalized and for whom there was not adequate nursing care at home, this would indicate that those in charge had found it difficult to arrange for hospitalization, especially in indigent cases. This has influenced the Commission, with the endorsement of the State Department of Health, to petition the legislature for a revolving fund for ophthalmia neonatorum. This fund is to be used for emergency nursing care and hospitalization pending arrangements with officials who are responsible. The following announcement is made to all health officers and is to be circularized among the physicians of the state:

"The New York State Commission for the Blind is concerned that any baby in the state should become blind from ophthalmia neonatorum. The Commission now has an emergency fund which may be used to obtain immediate hospitalization, when difficulties in the usual procedure arise.

"The Commission does not assume the constant expense of hospital care for these babies but will underwrite it, pending necessary arrangements for payment to be made through responsible sources, in order that care may be secured without an hour's delay.

"The Commission may be reached by long distance telephone or telegram. Cases needing hospital care while the Commission office is closed and cannot be reached, may be sent into the hospital on the responsibility of the Commission; notification must be sent to the Commission office in New York City, immediately."

In special cases where parents at first refuse to accept hospitalization for the baby or when other adjustments are necessary, pending admission to a hospital, the Commission has authorized and met the expense for special nurses in the home.

The above statement takes into account only the service rendered where eye infection has appeared. The Commission does not lose sight of the fact that education is necessary to prevent the occurrence of eye infections in the newborn, through prenatal care. The program for prenatal work as conducted by the State Board of Health has had the active support of the Commission which has taken part in the formation of committees to further these methods of prevention.

#### REGISTRATION OF OPHTHALMIA NEONATORUM CASES

	1928-1931			
	1928-1929	1929-1930	1930-1931	Total
Number of cases registered . . .	44	62	57	163
Number of home visits made . .	19	67	57	143
Follow-up correspondence . . .	108	64	90	262
<b>Findings:</b>				
Prophylactic used . . . . .	38	50	48	136
Prophylactic not used . . . .	4	9	6	19
Incomplete data . . . . .	2	3	3	8
Delivered by doctor . . . . .	38	55	46	139
Delivered by midwife . . . .	2	1	2	5
No attendance at birth . . . .	2	6	6	14
Incomplete data . . . . .	2	0	3	5
Complete recovery . . . . .	33	54	50	137
Blind . . . . .	7	3	0	10
One-eye blind . . . . .	0	1	0	1
Partially sighted . . . . .	0	1	0	1
Impaired vision . . . . .	0	1	0	1
	First Year	Second Year	Third Year	Total
<b>Result of Smears:</b>				
Positive G. C. . . . .	10	34	29	73
Negative . . . . .	0	15	15	30
Not taken or not reported . .	33	13	14	60

# ANALYSIS OF CARE OF THIRTEEN INFANTS TOTALLY OR PARTIALLY BLIND FROM OPTHALMIA NEONATORUM

PARTIAL BLIND FROM OPHTHALMIA NEONATORUM														Total
Case No. ....	1*	2	3	4	5	6	7	8	9	10	11	12	13	13
Blind. ....	X	X	X	X	X	X	X	..	X	..	X	X	..	10
One-eye blind. ....	..	..	..	..	..	..	..	X	..	..	..	..	..	1
Partial sight. ....	..	..	..	..	..	..	..	..	..	X	..	..	X	2
Prophylactic used. .	X	..	..	..	X	..	X	X	X	..	X	X	X	8
Non use of prophylactic at birth. .	..	X	..	..	..	X	..	..	..	X	..	..	..	3
Use of prophylactic unknown. ....	..	..	X	X	..	..	..	..	..	..	..	..	..	2
No physician at birth. ....	..	..	X	..	..	..	..	..	X	X	..	..	..	3
Not hospitalized, inadequate nursing care at home	X	X	..	..	..	..	X	..	..	X	..	..	..	4
Delay in hospitalization. ....	..	..	..	X	..	X	..	..	X	..	X	..	..	4
Too early discharge from hospital. .	..	..	..	..	X	X	..	X	..	..	..	..	X	4

\* Born in Pennsylvania—eyes were infected when moved to New York State.

Reviewing the 163 cases registered, reasons for loss of vision are attributed to:

1. Failure to use a prophylactic at birth in some cases.
2. Too little effort to hospitalize cases even when positive smear was obtained.
3. Lack of provision for adequate nursing care at home, in most cases where babies with positive smears were not hospitalized.
4. Too early discharge by hospitals before securing two negative smears.
5. Apparent lack of consultation with eye physicians in cases of eye infection, even though positive smears were obtained.
6. Failure to recognize the dangers of an infected eye when the smear is not positive, on the assumption that the condition may not be serious.

With reference to an apparent indifference to the possible seriousness of cases where a first smear is negative, it is interesting to note the number of cases registered by the State of Massachusetts for the year 1929 when 1,399 were registered, 45 were gonococcus infection, showing that all eye infections are reportable, whether or not the smear is positive.\* The care taken by some hospitals is encouraging. In one case 38 smears were taken for each eye, all of which were negative, before the baby was considered safe for discharge. Mention should also be made of a few cases where the attending physician, recognizing the lack of resistance owing to poor nutrition (premature births), called in a pediatrician. Sight in these cases was saved.

### Research Work

It is with regret that very little work in the research field can be noted. With several thousand medical histories available, the Commission hopes to undertake studies which will be of service in prevention work. County surveys are being made throughout the year and are of special interest in the field of prevention, in that the eye diagnosis and causes of blindness are ascertained and classified for further study.

Case histories of sympathetic ophthalmia following eye injuries are being taken each year, to be added to the special study started in 1928. It is felt that this material will be of peculiar value inasmuch as the final results of cases of eye injuries are not usually known to the eye specialists who originally examined them. As far as we know, conditions existing prior to the total loss of sight from sympathetic ophthalmia, following accident, are not generally available for analysis through clinical records. As the number of these cases is limited in each state, it is urged that other commissions accumulate reliable information on sympathetic ophthalmia for study.

\* See report, *Prevention of Blindness in Newborn Babies*, issued by the National Society for the Prevention of Blindness, 1931.

## Editorials

### National and Local Prevention of Blindness

“**W**HAT function has a national organization in those communities where there are state or local agencies?” is a question occurring to hundreds of national volunteer agencies. Perhaps the answer is: The same relationship that the Federal Government has to state government, or that the state governments have to the municipal governments. In other words, there are certain national aspects that occur locally with which the national agency is best equipped to cope, or in which the co-operation of the national agency is essential to the best interests of the problem.

The National Society for the Prevention of Blindness has found it necessary to conduct an ever increasing program even though local programs are springing up all over the country. Indeed, the more local agencies there are, the more adequately the National Society feels it can function. In many instances the local organizations are growths of the seeds carefully sown throughout the past decade by the National Society and its constituents.

It seems necessary to restate occasionally the place of the National Society in relation to local agencies for saving sight. In order to help in such an evaluation, the SIGHT-SAVING REVIEW, beginning with this issue, is presenting a series of articles describing the activities of various state and local, official and unofficial, organizations engaged in prevention work. With this in mind, the REVIEW presents as the first of the series, discussions of the Society's activities and the activities of the official agency of New York State, the Prevention of Blindness Department of the Commission for the Blind of the New York State Department of Social Welfare. The Editors feel this is a particularly happy combination, first, because New York State is the locale of the National Society's modest beginnings and second, because the taking over of prevention work in New York by the State exemplifies the ideal functioning of a co-operative effort between an official state organization and a national volunteer society.

The origin of any volunteer welfare agency is traceable to the realization of a social need not being adequately met by state or local official agencies.

Thus, when in 1908 a few public spirited people in New York State became conscious of the number of children who were blind in their state from preventable causes, chief among which was ophthalmia neonatorum, they felt that something must be done about it. They discussed ways and means of influencing the state legislature and educating the public in the necessity of using prophylactic measures to prevent ophthalmia neonatorum or "Babies' Sore Eyes," as it was popularly called. And with those few objectives the volunteer agency, the New York State Committee for Prevention of Blindness, was formed. The history of the National Society for the Prevention of Blindness dates back to this simple beginning. When, by 1915, it was found that the work of the New York State Committee was really of necessity national in scope, the National Committee for the Prevention of Blindness was established, retaining the New York State organization as a standing committee. Still later, the name was changed to the National Society for the Prevention of Blindness.

Of course it must be remembered that official agencies such as state departments of education, state departments of health, the labor bureaus, and others, have all along, in some of their aspects, participated in saving sight. After the New York State Commission for the Blind established a Prevention of Blindness Department in 1928, co-operating with the National Society, the New York State Committee for the Prevention of Blindness was eliminated as a separate entity. Such a co-operative relationship is, in fact, only one example of many that could be named. How some of the other localities meet their sight-saving problems will be the subject of future articles appearing in the REVIEW.



### "The Right to be Blind"

Since the veto by the Governor of Illinois of a bill compelling the instillation of silver nitrate or some equally effective prophylactic into the eyes of babies at birth to prevent ophthalmia neonatorum and consequent blindness, a wave of moral indignation has swept over the social welfare and medical worlds. The SIGHT-SAVING REVIEW can do no better than to quote from *The Survey*, one of the many magazines whose editorial columns expressed the feeling among welfare workers:

"Among health organizations there are few records as clear and convincing as the showing of the National Society for the Prevention of Blindness as to the decline in blindness among newborn babies since statutes have compelled the use of silver nitrate at birth. Yet a few weeks ago Governor Emmerson vetoed a bill to this effect in Illinois, on the basis of an opinion by the attorney-general that the measure exceeded the police power of the state and that 'the individual has certain fundamental rights which must be respected.' An effort to pass the bill over the veto failed in the senate. The loss of sight is an incapacity equivalent to death in a schedule for evaluating industrial accidents recently published by the Association des Industriels de France and now under discussion by the International Labor Office. Even to this extent newborn babies in Illinois continue to enjoy their inalienable and constitutional rights."

The outlook is not as gloomy as it appears, however. After all, the bill passed the house and lacked only a few votes to pass the senate, over the governor's veto. The Illinois Society for the Prevention of Blindness continues to bend its forces to the cause. There are future meetings of the legislature to which the people of Illinois can look with confidence.

## Note and Comment

**Prevention of Blindness in Canada.**—Although the formal movement for the conservation of vision in Canada is still in its infancy, the Prevention of Blindness Department of the Canadian National Institute for the Blind has undertaken a broad educational program throughout the provinces to reduce preventable blindness. Making their strongest appeal through public education, and with the help and co-operation of other social and medical agencies, the Prevention of Blindness Department has seen instillation of silver nitrate in the eyes of newborn babies become compulsory in six of the nine provinces; it has instigated and inspired the routine eye examinations of school children; it has encouraged the establishment of sight-saving classes and added to the knowledge of eye conditions and hygiene among public health nurses; the eyes of industrial workers have profited by its campaign for industrial safety, and children have learned to avoid activities involving eye hazard.

Following the example of the National Society for the Prevention of Blindness, the Prevention of Blindness Division of the Canadian National Institute for the Blind has acted as a demonstration center and co-ordinating unit in the spread of knowledge and technique for prevention of blindness and conservation of sight. From its headquarters in Toronto, articles in popular journals, talks to mothers' clubs and other community organizations, illustrative material in the way of posters, slides, and motion pictures have reached many corners of the Dominion with their message of saving sight.

**The Handicapped Child in China.**—The education and care of the physically handicapped, so long left to the kindness of the fates in China, is at last receiving the attention of authorities, according to George B. Fryer, in the *March Teachers' Forum*. Of all those handicapped, the blind are the most unfortunate, due to superstition and prejudice, and for centuries the blind have been outcasts and pariahs. In prevention of blindness work, an investigation is being made to ascertain the conditions of the eyes

of school children. It has been found that about fifty per cent of them are suffering from trachoma and other eye troubles. Maternity hospitals and baby clinics have been established to insure better attention to the eyes of infants.

Mr. Fryer, looking beyond the immediate needs of the blind, says: "With regard to prevention of blindness, we have not been able to do much except in the way of publicity work. The need of a Prevention of Blindness Society is very great, and we sincerely hope the way will be open for one to be started in the near future."

**The Eyes in Seasickness.**—Much has been written on the psychological and physical causes of seasickness. The general opinion has been that there is a very close relationship between the semi-circular canals and a tendency toward seasickness. It is generally believed that much seasickness is due to mental suggestion. In a recent group of articles on seasickness appearing in the *British Medical Journal*, Martin Flack, director of medical research of the Royal Air Forces of England, presented the experiences of testing muscle balance of the eyes of aviators. According to the tests made, it was found that when the muscles of the eye do not make compensating adjustments to changes in the labyrinth and kinesthetic centers, this imbalance is a predisposing cause of seasickness. It testified further that during a recent voyage of a transatlantic liner the good sailors showed that they had perfect eye muscle balance, while the poor sailors all showed a marked imbalance of eye muscles before and during the acute stages of the sickness.

**Conference on Lighting in Industry.**—A lecture on industrial lighting recently given at the Royal Society of Arts in London brought some interesting points into discussion. Sir John Parsons who presided at the meeting, stated that the problem of illumination cannot be considered alone; it is closely linked with the function of the visual organ, a factor which cannot be held constant. He urged a greater co-operation between the lighting experts and the authorities on the eye. Mr. D. R. Wilson, deputy chief inspector of factories, pointed out the benefits which are directly observed in improved plant illumination. Mr. J. H. Fisher added that while factory workers did not have the ideal lighting

conditions in their own homes which are found in factories, education and example might teach them the importance of adequate lighting at all times.

**Prevention of Blindness in Manitoba.**—A recent survey of health conditions in Manitoba has revealed that trachoma exists in ten per cent of the people of the Mennonite sections, in the southeast section of the province, and that one-seventh of the population are suffering from some sort of eye defect. Steps are to be immediately taken to prevent the spread of the disease, and to treat those already infected. In reporting the steps already taken to prevent blindness in children, the deputy minister of health stated that the department has made compulsory the reporting of all infectious eye diseases in the young infant, and that ampules of silver nitrate are being distributed free of charge for use in the eyes of the newborn babies. A law compelling the use of this prophylactic for all newborn infants is being urged. Inspection of the eyes of school children is followed up by visits to the home by public health nurses, and in cases where the family is unable to supply the child with proper ocular care glasses are supplied free.

**Pointed Editorial on Eye Health for Children.**—The official organ of the Westchester County Department of Health, *Westchester's Health*, in its June 15 issue, contains an important lesson not only for parents, but for all who are concerned with the individual and community aspects of child welfare. A six-year-old child, considered rather stupid not only at school but at home, was found to have seriously defective sight. The day after she had been fitted with her corrective glasses, she didn't come to school because, looking into the shop windows she saw such fascinating displays of fruit and cakes, of dresses and millinery, and, she explained to the teacher, "There was never anything there before."

"What can be done to remedy the situation?" asks the editorial. "The schools nowadays frequently discover the serious defects, but previously the child has failed to develop as he should. The best time for correction is during the preschool age. . . . The child will not outgrow his poor vision, and a parent who permits anything to stand in the way of correcting such a defect is handicapping the child, perhaps for life."

**Blindness in China.**—Fully one-eighth of the blindness in China is caused by inadequate nutrition, says Dr. Lossouarn, Director of the Medical College of Tientsin, in a recent issue of the *Review and Information Bulletin of the League of Red Cross Societies*. "An eye is worth less than an egg," he finds, for much if not all of the xerosis among laborers could be eradicated by the addition of one egg a week to the diet.

In order of frequency, the six principal causes of blindness in China are: smallpox, xerosis, trachoma, syphilis, gonorrhea and local customs. Ulcers of the eye are pierced with pins, lamp wicks are used to rub the diseased cornea! In the battle against the appalling blindness of China, the Chinese League for Prevention of Blindness has laid plans to administer smallpox vaccination, to treat and prevent xerosis, to teach and encourage personal hygiene, and to decrease the amount of syphilis. Four dispensaries for the treatment of eye diseases are maintained in Tientsin and, with the help of the medical missionaries, the work is being carried into the interior. Prevention of blindness, still in its embryonic stage in China, presents a tremendous task, but one of everlasting mercy.

**World Co-operation in Ophthalmology.**—The Amsterdam Congress of 1929 showed the wisdom of pooling of knowledge for the common good, says a recent editorial in the *American Journal of Ophthalmology*. International eye problems are receiving the combined fruits of knowledge and practical experience; the work of trachoma prevention in Egypt has its lesson for China, London, Finland and the mountain regions of Kentucky. India has contributed to the knowledge of the western world in the treatment of glaucoma and cataract, while European and American medicine has greatly aided the work of blindness prevention in the Orient. The coming international Congress in Madrid opens fresh vistas of the help the world in general may both contribute and receive.

**The Eyes of London's School Children.**—The importance of adequate light in schools was very strongly emphasized in the findings of the eye examination of a group of school children, according to the most recent report of the chief medical officer of the Board of Education of London. It was found, on checking the illumination in the schools, that in those schools where the lighting

arrangements are definitely poor, there is a higher number of children with vision defects. Another interesting disclosure indicates that one-quarter of the children complaining of poor eyesight or eye-strain were found to have physically perfect eyes, their defects being psychological rather than physical. In the year's work the need of extending the examination of eyes into the lower grade groups and the preschool age groups was made increasingly evident.

**Control of Syphilis in New York State.**—Because syphilis is one of the major causes of blindness, any program for its control has special interest for those interested in the prevention of blindness. In New York State a special health commission has been devoting its efforts during the past year to a study of the possibilities of the control of syphilis. The recommendations of the commission include; (1) state aided and state-wide system of county boards of health; (2) similar clinics for cities; (3) extension of diagnostic laboratories; (4) free distribution of arsphenamines to all physicians; (5) facilities for treatment of all cases, regardless of ability to pay; (6) state-wide education.

**Sight-Saving Classes Urged for Europe.**—In a recent address to the Child Welfare Committee of the League of Red Cross Societies on the education of blind children, Dr. F. Humbert, secretary-general of the International Association for the Prevention of Blindness, urged the need and desirability of sight-saving classes for children with partial vision. Pointing out that children with 1/10 of normal sight have been successfully educated without detriment to their sight through the methods first established in the myope classes in England and perfected in the sight-saving classes of the United States, Dr. Humbert suggested study and research into the number of children needing this special care, recommending that governments establish such instruction on a free compulsory basis.

**Anti-Trachoma Efforts in Japan.**—As a part of their recognition of trachoma as an international problem, the Anti-Trachoma League of Japan has offered its co-operation to the International League. Under governmental auspices, a course for general practitioners and health officers in detection and treatment of trachoma

will be given by Dr. Shinobu Ishiwara, professor of ophthalmology at the Tokyo Imperial University, in those prefectures from which emigrants depart to South America and other countries.

**Styes, A Danger Sign.**—In a paper read at the December meeting of the Kansas City Society of Ophthalmology and Oto-laryngology, Dr. F. C. Boggs stated that while the literature of science has very little to say about styes, folklore holds many reasons and many cures for them. As a rule there is an underlying physical disability causing styes, while inflammation of the nose, throat or sinus also accounts for their appearance. Treatment may be local, but cure is effected through diet and general improvement of nutrition.

**The Eyes and Moving Pictures.**—Dr. E. Nicholas Hughes, a school medical officer in England, writing on the effect of moving pictures on the eyes, reports that a great many children complain of headache or eyestrain after seeing a motion picture. Although some of these children are in need of refraction, many have normal eyes. He recommends that children be barred from sitting in the front seats of the motion picture theatre, since from a close position the picture is blurred and dazzling. From an entirely different angle, David Levinson, in the *Motion Picture Projectionist*, claims that motion pictures do not impose any strain upon the eyes, although eyestrain may arise from poor projecting or poor quality of film, while any uncorrected defect in the eyes of the observer is aggravated. A defect in the vision of the operator might cause the film to be thrown out of focus. Proper illumination of the theatre and care of the projecting machine are of paramount importance in providing pictures which do not tax the eyes of the audience.

**Wasted Effort in Clinics.**—In an editorial in the May issue of the *American Journal of Ophthalmology*, a particularly pertinent comment is made upon a common fault of public eye clinics. With all the facilities for excellent work in remedying eye disease and preventing blindness, the clinic cannot do a complete job without the co-operation of its patients. Quoting figures which demonstrate the number of treatments which are begun and the few



which are completed, the editor recommends: "For the benefit of the individual patient, and for the accumulation of experience which can be applied to the relief of future sufferers, there is probably no wiser expenditure than that which is devoted to follow-up work."

**Ophthalmia Neonatorum in Maryland.**—Of the 24 children recommended for admission to the Maryland School for the Blind during 1928–1930, only two were victims of ophthalmia neonatorum. In 1905, 40 per cent of the new admissions were cases of this unnecessary cause of blindness. Of the total enrollment of blind pupils, in 1905, 27 per cent were blind because of ophthalmia neonatorum, while in 1930 the schools had only nine per cent blind from this cause. Dr. James J. Carroll, ophthalmologist, concludes his report by pointing out that through the universal use of Credé prophylactic, this tragic cause of blindness may be eliminated almost entirely.

**Seeing for Sport.**—At the 1931 meeting of the Ophthalmological Society of the United Kingdom in London, April 23 to 25, Air Vice-Marshal Sir David Munro read a paper on "Vision in Sport." He pointed out that the ability to see, coupled with the muscular co-ordination and good visual judgment, is an important factor in games. The importance of ocular balance is seen in all games which need judgment of distance, such as ball games, golf and tennis, shooting, and aviation.

**New Eye Institute Planned.**—To all interested in the varied phases of prevention of blindness, the initiation of a new eye institute as part of New York's Medical Center will be of particular note. The gift of Mr. Edward S. Harkness to the Presbyterian Hospital, the eye institute will be the first of a group of special hospitals to be added to the facilities of the Medical Center. Beds and treatment will be offered to sufferers from eye disease. The institute, further, will offer special research opportunities, teaching and training to medical students and nurses in ophthalmology. Dr. John M. Wheeler will direct the work of the institute.

**Trachoma Battle in Brazil.**—The office of chief ophthalmologist, with the duty of organizing clinics for treatment, has been created

in Brazil to aid in the fight against trachoma and other eye diseases. Immigration regulations will prevent infectious patients from entering the country, and throughout the nation information on eye hygiene and sight conservation is being disseminated.

**A New Hazard to Children's Eyes.**—From the *Journal of the American Medical Association* of April 11 comes the story of a Negro baby girl, nineteen months old, who narrowly escaped death and has acquired complete optic atrophy from lead poisoning, caused by eating paint from the porch railing. At the same time comes the warning from the *National Safety News* to keep lead paints out of the environment of young children. Dr. Frank G. Pedly, in the *Journal of Industrial Hygiene* for December, 1930, points out the relationship between lead poisoning and vision. The new quick-drying enamels and indoor finishes do not contain lead, and are non-poisonous. In view of the universal habit of infants and young children to gnaw and bite on toys and furniture in their environment, it would be wise for manufacturers of children's toys and furniture to see to it that all paints used for furniture and toys be of non-poisonous nature, and for parents in buying these articles to specify non-poisonous finishes.

## Current Articles of Interest

**The Significance of Failing Vision**, J. Guy Jones, M.D., *Texas State Journal of Medicine*, April, 1931, published monthly by the State Medical Association of Texas, Fort Worth, Texas. Deterioration of vision may be from many causes, and simple refraction of visual errors will not only not help, but will frequently hide the real cause of failure until it is too late to correct it. The co-ordination of ophthalmologist and internist is vital to prevent the advance of conditions affecting the general system.

**Why are Albinic Children Educated in Schools for the Blind?** *The Teachers Forum*, May, 1931, published 5 times a year by the American Foundation for the Blind, Inc., New York, N. Y. That the partially seeing albinic child is frequently educated in schools for the blind is to be regretted, in view of the fact that he cannot resist the temptation to read Braille with the eyes instead of with the fingers; because, with his greater amount of vision, he is constantly tempted to help through his own eyes, the blind companion, to the detriment of his own work and to the spoiling of character of the blind child; because his vocational training is blind training, and his chances for earning a livelihood are lessened. Although it may be better for the albino to attend a good school for the blind than to suffer the humiliation of disregard of his affliction in a poor regular school, educators and those concerned with the welfare of the children should advance the establishment of sight-saving classes to care for these and other partially seeing children.

**A Medical Problem that Became a Psychological Problem**, Louise Nelson, *Mental Hygiene*, April, 1931, published quarterly by the National Committee for Mental Hygiene, Inc., New York, N. Y. A boy 18 years old, displaying average intelligence in other scholastic fields, continued to fail in his reading courses. His intelligence and performance tests showed normal results. Upon examination, it was discovered that he had suffered a slight injury to one eye which had made uncorrected use of that eye painful and tiring. Although glasses corrected his vision defect to

a large extent, the previous discomfort of reading had conditioned him against this activity. The writer concludes, "Had the eye defect been discovered and diagnosed before the reading stage, and glasses prescribed, Thomas might have had a much more satisfactory emotional and school life. . . . His experience suggests the advisability of an early and thorough examination of the sensory organs of children before entrance to school, with equally thorough periodic subsequent ones."

**Babies' Eyes in Summer**, B. Franklin Royer, M.D., *Hygeia*, July, 1931, published monthly by the American Medical Association, Chicago, Ill. Strong sunlight, dust and flies of summer add to the natural dangers which imperil the eyesight of young babies. The writer advises on protection of the eyes during sunbaths, and warns of the menace of dust, insects and strong wind.

**Analysis of 1,000 Examinations of Eyes for Compensation Purposes**, M. Davidson, M.D., *The Industrial Bulletin*, May, 1931, published monthly by the Industrial Commissioner of New York State, Albany, N. Y. In analyzing 1,000 claimants for eye compensation, the writer, staff ophthalmologist in the New York Office of the Division of Workmen's Compensation, not only presents technical studies on methods of examination, but he finds that: (a) malingering is not so frequent as generally believed; (b) acceptance of 20/20 as normal vision works to the disadvantage of many claimants whose normal vision exceeds this amount; (c) definite diagnosis of visual loss due to hysteria or neurosis should be made only when supported by a neurologist; and (d) a standard test type and form of illumination is advisable.

**Daylight Without Glare**, R. A. Miller, *National Safety News*, June, 1931, published monthly by the National Safety Council, Chicago, Ill. In the effort to obtain maximum benefits of daylight without glare, the illumination engineer must look to the type of window glass used in the plant. The diffusing glass most efficient is that whose surface most closely approximates plate glass, permitting an equal distribution of light without causing sudden streaks and areas of glare. In conjunction with the problem of maximum daylight arises the question of interior paint and the use of mirrors to amplify the available daylight.

**Myopia: Cause, Progress, and Treatment**, Meyer Weiner, M.D., *Southern Medical Journal*, June, 1931, published monthly by the Southern Medical Association, Birmingham, Ala. Outlining the literature on myopia, the author finds it a peculiarity of higher civilization. Infants are hyperopes; among savages and people of low culture there is little myopia, while with the increase of learning, seen in the school child and to a greater extent in the college student, myopia may reach as high as ninety per cent of the pupils. There is no proof that intensive eye work causes myopia, nor that poor lighting is a contributing cause. Various authorities have pointed out the coincidence of myopia in parents and offspring, suggesting that it is an inherited defect. Progressive myopia may often be checked by an improved diet and adequate correction, while persistent progressive myopia should lead to suspicion of endocrine disturbance.

**Glaring Causes of Accidents**, *The Travelers Standard*, June, 1931, published monthly by the Travelers Insurance Company, Hartford, Conn. The sense of sight, responsible for about 70 per cent of our reactions, is lessened or lost entirely in the presence of glare. Exposed light filaments, uncovered light sources within the range of vision, or strong reflection from light-reflecting surfaces are annoying and hazardous sources of glare. The writer urges a greater realization of the danger accompanying excessive glare and the importance of correcting it.

**The Control of Trachoma**, N. Bishop Harman, *American Journal of Ophthalmology*, April, 1931, published monthly by the Ophthalmic Publishing Company, Saint Louis, Mo. The author points out that although the cause of trachoma is still in question and its extermination cannot be brought about until its cause is known, control of trachoma is definitely a practical possibility. He discusses the reduction of the number of cases in England in the last fifty years and points out that, though the cause is not known, it is found in places where dirt, squalor and crowded conditions abound, and that it is less likely to spread where social and living conditions are improved. In bringing about the control of trachoma, the writer advocates the raising of living standards and the exclusion of immigrants having trachoma, in addition to treatment of those infected.

**Early Treatment of the Cross-Eyed Child**, E. K. Hallock, M.D., *New York State Journal of Medicine*, June 15, 1931, published twice a month by the New York State Society of Medicine, New York, N. Y. The idea that children outgrow strabismus is responsible for the fact that they are often brought to the attention of an oculist too late for visual correction. Errors in muscle balance should be corrected early in life. Much of this imbalance is caused by a marked defect in one eye, throwing all of the burden of seeing upon the good eye, and disposing the poor eye to atrophy. Treatment consists in forcing the poor eye, after refractive correction, to do its share of seeing, either by binding up the good eye for a period, or otherwise withholding its sight until the defective eye resumes its activity. Operation for correction or for cosmetic reasons should be a last resource.

**Compensation for Injuries of the Eye**, Sanford R. Gifford, M.D., *Illinois Medical Journal*, April, 1931, published monthly by the Medical Profession of Illinois, Chicago, Ill. The physician who is called upon to testify to eye injuries for compensation insurance must carefully study the eye in fairness to the injured party and in fairness to the defendant. Firms or insurance companies who have made a previous record of the plaintiff's vision are protected from the claim that the injury has diminished sight, when frequently the sight is as it always was, and eye examination following the accident has only focused attention upon it. Pointing out the main injuries to the eye, and suggesting tests to determine the severity, the author warns against malingerers who claim loss of vision and suggests ways of determining the truth of their claims.

**Pennsylvania Goes Eye Health**, Evelyn M. Carpenter, R.N., *Pennsylvania's Health*, March-April, 1931, published bi-monthly as the Official Journal of the Pennsylvania Department of Health, Harrisburg, Pa. In the effort to keep at maximum level the health of the infant and of the school child, the health of the toddler is often lost sight of, but Pennsylvania is taking care of her preschool group. Not content to wait until these children are actually in school before visual defects become apparent, the State Department of Health has equipped a motor unit to go into the rural sections to find those young children whose eyes are in need of care. During the past summer 40,545 children were examined,

with the help of the State Council for the Blind who taught the Health Car personnel the technique of vision testing. The practicability and simplicity of the vision testing, the plan perfected by the National Society for the Prevention of Blindness, encourages the Department of Health to urge that this routine vision test be given to every child of four to six.

**Eye Protection**, W. T. Cameron, *Safety Engineering*, June, 1931, published monthly by the Safety Magazine Publishing Company, New York, N. Y. In a popular graphic style, the writer urges the necessity of eye protection in industry. As a representative of the American Optical Company, he is well acquainted with the types of goggles and eye protection of most value to particular types of jobs.

**Making the Blind See**, Louis Lehrfeld, M.D., *Hygeia*, June, 1931, published monthly by the American Medical Association, Chicago, Ill. Although many people suppose that a cataract is a growth over the eye, and the derivation of the word from the Greek shows the authority of this conception, cataract is in reality a breaking up of the crystalline lens. Diabetes, hardening of the arteries, and Bright's disease may predispose toward cataract; injuries to the eye may cause cataract, or it may be a congenital defect, inherited from father or mother. The operation of cataract is now universally accomplished with great facility by skilled physicians. Age is no bar to a cataract operation.

**Co-operation between the Oculist and the Oto-rhino-laryngologist**, George W. Schlindwein, M.D., *Pennsylvania Medical Journal*, June, 1931, published monthly by the Medical Society of the State of Pennsylvania, Harrisburg, Pa. The author points out many types of cases in which the oculist and oto-rhino-laryngologist may work together, notably in cases of retrobulbar neuritis, and concludes that in all obscure eye conditions, a full examination has not been made until the nose, throat and sinus conditions have been checked.

**More Light, Less Accident**, William E. Mates, *The Constructor*, October, 1930, published monthly by the Constructor, Inc., Washington, D. C. While fewer accidents happen on a construction job in June than in December, due to the longer hours of good natural light, many days and many jobs require supplementary artificial



lighting. There are a few rules which should be as rigidly enforced in temporary jobs as in permanent plants:

- (1) Lighting units must be evenly spaced.
- (2) Areaways, shafts, etc., should be especially lighted.
- (3) Reflectors should be installed to protect the eyes of the worker and increase the source of light.
- (4) Floodlights, out of the worker's way, available for many types of work and weather-proof, are the more efficient type of light for out-of-door work. The cost of good lighting is small beside the cost of labor, and immeasurably less than the cost of accidents.

## National Society Notes

SUMMER courses for training teachers of sight-saving classes have called upon members of the staff of the National Society for the Prevention of Blindness for lectures and teaching. Mrs. Winifred Hathaway, associated director of the National Society spent six weeks as a special lecturer at Teachers College, Columbia University, giving a course for training sight-saving class teachers.

The medical training of sight-saving class teachers has been provided by Dr. B. Franklin Royer, medical director of the Society, at Tulane University, New Orleans, La., at the University of Chicago, Chicago, Ill., at State Teachers College, Buffalo, N. Y., and at Teachers College, Columbia University.

Mr. Lewis H. Carris, managing director of the National Society, has lectured not only at these four universities giving specific sight-saving class courses, but has also spoken on the work of the National Society at the Public Health Institute at the University of Michigan, Ann Arbor, Mich., and at the University of Kentucky, Lexington, Ky. At the Winona Lake Child Health Week, given under the auspices of the Indiana State Board of Health as its state contribution to the White House Conference, Mr. Carris spoke on "Saving the Sight of School Children."

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From many sections of the country demands have come for the work of Miss Mary Emma Smith, director of nursing activities of the National Society. Since her return from a two months' tour of southern states, Miss Smith has demonstrated methods and materials of testing preschool vision in Pittsburgh, Pa., Wichita, Kan., and Keene, N. H.

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Miss Eleanor P. Brown, secretary, represented the National Society for the Prevention of Blindness at the meeting of the National Conference of Social Workers at Minneapolis, Minn., June 14-20. A booth was especially designated for exhibition of the Society's posters and publications, at which Miss Brown presided.

Miss Brown also attended the luncheon given by the Committee on Medical Social Service in Eye Clinics, held during the conference week, and was available for conferences regarding the various phases of the Society's work.

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Mr. Carris led the discussion, following the presentation of the Society's film, "Preventing Blindness and Saving Sight," at the Annual Meeting of the Medical Society of New Jersey, held in Asbury Park, N. J., June 5, 1931. The film formed part of a conference on the physician's part in sight conservation, at which Dr. Elbert S. Sherman read a paper on the general practitioner's rôle in the conservation of vision.

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Continuing its efforts in saving sight in industry, the National Society will be represented by two members of its staff, Miss Brown and Miss Isobel Janowich, editor, in the presentation of two radio talks to be given in New York City early in September, under the auspices of the Labor Union Safety Committee, appointed by Governor Roosevelt in 1929.

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While spending his vacation abroad, Mr. Louis Resnick, industrial relations director, had several conferences with Professor de Lapersonne, president of the International Association for the Prevention of Blindness, on the subject of eye accidents in industry and has conferred with Dr. F. R. Humbert, secretary-general of the International Association regarding various aspects of its work.

## Book Reviews

INDUSTRIAL ACCIDENT PREVENTION. By H. W. Heinrich. New York: McGraw-Hill Book Company, Inc., 1931. 366 p.

The incidental costs of accidents are at least four times the direct cost. Accidents are the responsibility of the employer. Prevention must be based on an analysis of the real causes. Such analysis shows that in 88 per cent of the cases the causes are supervisory—faulty instruction, unsafe practices and the like; only 10 per cent are physical and 2 per cent unpreventable. Determination of the real cause at once suggests the remedy which should be applied through regular operating management. General safety education is of limited value; “carelessness” is an alibi. Safety education must be specific. Psychological study of hidden causes is a new development of great promise.

This general thesis, already familiar to safety men who have followed Mr. Heinrich's earlier writings, forms the main portion of his book and makes it a real contribution to the literature of industrial safety. In addition, a hundred-page chapter, profusely illustrated, is devoted to machine guarding; “process and procedure revision,” illumination and statistics are briefly discussed and appendices present statistical information as well as quotations from other writers on cause analysis and accident proneness.

The book is well written and the author's points are driven home by a wealth of anecdotes and illustrations which reflect his rich and varied experience. . . . It can be read with profit by any executive or safety man, expert or novice. It adds new evidence to support the now familiar conceptions of safety as inseparable from efficiency and as an essential function of industrial management.

*National Safety News*

ARTIFICIAL SUNLIGHT. By M. Luckiesh, D. Sc. New York: D. Van Nostrand Company, 1930. 246 p.

This is an extremely readable and valuable contribution from the pen of Dr. Luckiesh, who is the director of the Lighting Re-

search Laboratory of the National Lamp Works, General Electric Company. Luckiesh has written several volumes, such as *Color and Its Applications*, *Light and Shade*, *Artificial Light*, and *Light and Work*, which will probably be of more direct application and therefore of greater interest to those in anywise interested in the eye and human vision. However, this is a day and age in which radiant energy and its influence on the human body are subjects of much experimentation and much in the form of clinical and research articles, as well as monographs.

The volume presents with accuracy and yet in a readily understandable form the essential facts and results of research regarding solar radiation, the effects of spectral energy, infra-red radiation, the measurement of ultraviolet radiation, electric arcs and the utilization of artificial sunlight.

Since this brochure is a general survey of the field of radiant energy (infra-red, visible and ultra-violet) particularly from the standpoint of health, it would be expected that but little attention would be devoted to the eyes. The presentation and discussion of the effects of ultra-violet rays on the eyes is limited to a few printed pages. The last portion of the book is devoted to the utilization of artificial sunlight so produced as to meet visual requirements and yet provide the so-called health-giving rays.

The book should be read by all who are interested in modern developments concerning radiant energy.

CHARLES SHEARD, PH.D.

MEMORIA DEL PRIMER CONGRESO MEXICANO DE PREVENCIÓN DE LA CEGUERA. (Transactions of the First Mexican Congress for the Prevention of Blindness.) Edición de los *Anales* de la Sociedad Mexicana de Oftalmología y Oto-laringología. Mexico City, Mexico: Talleres Graficos de la Nacion, 1930. 191 p.

A national meeting for the prevention of blindness is a noteworthy occurrence. That which convened in the City of Mexico from the first to the sixth of November, 1930, was of special importance, being the first held in Mexico and having the support and approval of the federal authorities. The president was Dr. Daniel Velez and among the honorary presidents and active participants was Dr. Rafael Silva, both distinguished ophthalmologists.

Among the participants were representatives of the Mexican Red Cross Society, the National Medical Staff, the Military School, the Institute of Biology, the Societies for the Control of Leprosy, Cancer, Tuberculosis, Alcoholism, Syphilis, Venereal Diseases and other equally important organizations. The program was most carefully arranged and the papers presented were of a high degree of merit. They included educative conferences, publications through the press, propaganda as well as practical measures for prenatal care, prophylaxis in ophthalmia neonatorum, protection of the eyes in infancy, in childhood, in adolescence and in old age with the special care necessary in the various diatheses and general affections. Advanced measures were taken in the recommendations for medical examinations before marriage, for co-operation with the employers of labor for the prevention of accidents and injuries in industry, and with the department of public education in relation to textbooks, schools, etc., with practically all modern measures relative to protective care of the eyes.

Perhaps the most unusual and interesting report was that on the existence of onchocercosis in certain of the Mexican States. The extent of this infestation involving the eyes of the inhabitants of a remote Indian village was startling. In one community of 700 inhabitants, all of them had lost their sight through infestations of these minute worms, the larvæ of which were transmitted on the proboscis of any one of three species of gnats or mosquitoes. The living wriggling filaria were demonstrated by the slit-lamp in several instances in the eyes of these poor aborigines. Curiously enough the carriers do not breed in stagnant but in clear running water. Organized efforts have been made by the Federal Department of Public Health for the control of this plague.

Representatives to the Congress were present from every state in Mexico as well as from Guatemala, Ecuador, and the United States. Among the latter was Surgeon-General Hugh S. Cumming of the United States Public Health Service who presided at the preceding session of the American Public Health Association. Dr. B. Franklin Royer and Mrs. Jessie Ross Royer, R.N., both read interesting papers. In all, fifteen delegates from the United States were present including Dr. William F. Snow representing the

National Society for the Prevention of Blindness and Dr. W. H. Luedde, the St. Louis Association for the Blind.

The *Transactions* constitute a volume of 191 pages, effectively illustrated and published as an edition of the *Anales* of the Mexican Society of Ophthalmology and Oto-rhino-laryngology.

PARK LEWIS, M.D.

HEALTH, PUBLIC AND PERSONAL. By Ralph E. Blount. New edition. New York: Allyn and Bacon, 1930. 347 p.

The material in this edition does not differ either in method or in arrangement from the 1922 edition; it has merely been brought up to date and new illustrations have been added. This brief review, then, will be of interest only to those who are not already familiar with the first edition.

The book is intended for use as a textbook in the junior and senior high school. It is based upon the experience of the author in the John Marshall High School in Chicago. Its title is somewhat misleading to those who are used to the present positive connotations of the word "health." The definition of health given is positive and inspiring, but it is not the kind of health that could be expected to result from the material which follows or from the method in which that material is presented.

The book contains a goodly amount of scientifically accurate material presented logically as fact information. It is well illustrated. At the close of each subdivision in each chapter there is a section of questions which test the student's grasp of the ideas presented, and which send him back to re-read, if he cannot answer them. There is also a "Laboratory Guide and Pupil's Notebook for the Study of Health," which provides pupil activity through laboratory material supplementary to the text. The "Laboratory Guide and Pupil's Notebook" is arranged in units of work designed to meet the needs of the progressive schools.

The material on the care of the eye is included in the chapter on "Avenues of Information." Topics discussed are: "The Structure and Action of the Eye," "Adjustment to Light," "Astigmatism," "Defects of Focus," "Disease Germs of the Eye," "Care of the Eye," "Accidents to the Eye," "Cross-eye," and "Color



Blindness." The section on "Adjustment to Light" is a welcome one. The reader wishes that more space had been given to scientific evidences supporting the five rules listed as important precautions to be observed in reading, and that less space had been given to the discussion of various diseases and defects of the eye. Self-administered tests for defects of focus are of little value, and self-medication, even to the extent of yellow oxide of mercury for granular lids, is questionable. The effect of color upon the eye, the size of type that is least fatiguing, etc., might well have been substituted.

From the point of view of conservation of vision, the book is open to criticism on two points. First, the questions at the end of each section and the explanations under the illustrations are in eight point type. This is distinctly unhygienic. A line count of the eleven pages on the care of the eye shows twenty per cent in eight point type. Secondly, fifty per cent of the 172 illustrations used are so placed that the context of the page is broken up into many short lines.

MARGARET PHELPS  
THOMAS D. WOOD, M.D.

FINDING AND TEACHING ATYPICAL CHILDREN. By Guy L. Hilleboe, Ph.D. New York: Teachers College, Columbia University, 1930. 177 p.

Since there is so great a diversity in the terminology used in referring to any type of physically or mentally handicapped child, any attempt to collect and classify information concerning any of these groups may result in statistics of questionable value.

Guy L. Hilleboe in *Finding and Teaching Atypical Children*, gives the result of a study of present day practices by the less frequently used method of personal interview. In 18 cities he secured accurate information concerning the selection, placement and follow-up of handicapped children. He also carefully reviewed pertinent books and articles published since 1920.

Teachers and administrators interested in beginning or extending work with visual deviates will find many valuable statistics readily accessible. The reasons for differentiation between classes for the blind and so-called sight-saving classes are clearly given. The

selection and diagnosis of cases for these groups is tersely stated. There is wide diversity of opinion expressed upon the advisability of high school work for the sight-saving group, but the unanimity of opinion of the great need for early guidance, job placement and follow-up of these cases emphasizes the importance of this neglected phase of educational organization.

LAURETTA F. RIESTER

AN INTRODUCTION TO APPLIED OPTICS. VOLUME I, GENERAL AND PHYSIOLOGICAL. By L. C. Martin, D.Sc., A.R.C.S., D.I.C. New York: Isaac Putnam and Sons, 1930. 324 p.

This volume was written by Dr. L. C. Martin, assistant professor in the technical optics department of the Imperial College of Science and Technology of London, England. Professor Martin says in his preface: "The teacher of light must perforce revise his syllabus! While he may curtail the time devoted to nonessential parts of 'geometrical optics' he will do well to bring the instruction as far as may be into vitally close relations with instruments, such as spectacles, telescopes and microscopes." He has carried out this plan in the preparation of this volume on general and physiological optics.

The eye and physiological optics are covered in about thirty-five pages. Aside from the elementary considerations, there are paragraphs devoted to the perception of light, the perception of form, measurements of acuity, perception of movement, peripheral vision, color vision, spatial induction and after-images. This chapter is of value to those interested in human vision.

The two most interesting and valuable chapters to the reviewer are Chapters VII and VIII (pages 226 to 310) dealing with optical glass, the production and testing of lenses and lens systems, with special reference to spectacle lenses (pages 262 to 310). The chapter on spectacles is perchance the best one in the volume.

In order to read the volume one must have an acquaintance with trigonometry and calculus. The volume is an excellent one, but is specifically intended for those who wish to have in comprehensive form the fundamental physical and mathematical developments in optics directly or indirectly applicable to vision.

LECTURE EXPERIMENTS IN OPTICS. By B. K. Johnson, F.R.M.S. New York: Longmans, Green and Company, 1930. 112 p.

This brochure contains information of much value to those who are interested in giving lecture demonstrations of the fundamental phenomena of light such as reflection, refraction, lenses, mirrors, photometry, the spectrum and color, polarization, interference and diffraction. The volume might well be termed a notebook containing details regarding the experimental set-ups and the apparatus needed.

CHARLES SHEARD, Ph.D.

#### Briefer Comment

ELEVENTH ANNUAL REPORT OF THE INDUSTRIAL HEALTH RESEARCH BOARD. Medical Research Council. London: His Majesty's Stationery Office, 1931. 85 p.

In the report of the Industrial Health Research Board which covers activities for the year as well as an analysis of work published from 1926-1930, the effect of the eyes and lighting upon the health and efficiency of workers is not overlooked. A study of the effect of lighting systems upon the work of compositors shows that more accurate work is done under indirect lighting. Good daylight illumination showed an improvement over the best artificial lighting. The need of glasses in close work, even for those of normal vision, was demonstrated in a study of the output of hosiery linkers. In an effort to lessen the amount of miners' nystagmus, the efficiency of miners' lamps was measured and standards determined. An investigation, not yet completed, studies the effect of different levels of illumination upon the efficiency of workers in "rough" occupations.

CORPORATION CONTRIBUTIONS TO ORGANIZED WELFARE SERVICES. Pierce Williams and Frederick E. Croxton. New York: National Bureau of Economic Research, Inc., 1930. 347 p.

A research and an analysis of the share which corporations have assumed in community welfare work, of particular interest to financial secretaries and community chest treasurers.

PHYSIQUE AND INTELLECT. Donald G. Paterson. New York: Century Company, 1930. 304 p.

The author divides his book into eight chapters, containing such subjects as, "Height and Weight in Relation to Intellect," "Cranial Measurements and Intelligence," "Anatomical Age and Mental Age," "Morphological Index, Height-Weight Ratio, and Intelligence," "Physical Condition and Mental Efficiency," and "Physique and Temperament." We are particularly interested in the chapter dealing with "Physical Conditions and Mental Efficiency," which includes in its discussion a very brief allusion to the relation of defective vision to mentality and quotes from findings appearing in "Laggards in our Schools," that among the dull, 24 per cent have defective vision; among the normal, 25 per cent have defective vision; and among the bright, 29 per cent have defective vision—directly opposite ratios to what occurs in any other physical defect.

THE RELIABILITY OF SOME SILENT READING TESTS. T. G. Foran and Robert T. Rock, Jr. Vol. V, No. 6, Educational Research Bulletins, The Catholic University of America, Washington, D. C.: The Catholic Education Press, 1930. 23 p.

An analysis and evaluation of some of the more widely known silent reading tests; the authors find the Stanford test the only one whose scores can be used with safety on the individual attainment, while the Gates test for group work takes a place above the average.

THE VISUAL PERCEPTION OF DISTANCE IN YOUNG CHILDREN AND ADULTS: A COMPARATIVE STUDY. Ruth Uppdegraff, Ph.D. Vol. IV, No. 4, Studies in Child Welfare. Iowa City: The University of Iowa, 1930. 102 p.

A study of the perception of distance in preschool children showed an understanding among children of distance, comparable to that of the adults tested. This research, although limited in value because of the small number upon which conclusions are based, is interesting in opening a new field and demonstrating the practicability of objectively testing the perceptive powers of young children.

THE EFFECT OF EYESTRAIN ON THE OUTPUT OF LINKERS IN THE HOSIERY INDUSTRY. H. C. Weston and S. Adams, Industrial Research Board of the Medical Research Council. London: His Majesty's Stationery Office, 1927. 20 p.

The nature of hosiery linkers' work demands a high degree of accommodation and convergence, tending to produce strabismus and eyestrain. Optimum illumination and adequate correction of refraction removed eyestrain and increased the speed of work. It is recommended in the conclusion of the report that in all industries where the eyes of workers are subjected to prolonged strain, correcting lenses be supplied the workers to minimize strain and visual fatigue.

ALL ABOUT THE BABY. Belle Wood-Comstock, M.D. Mountain View, California: Pacific Press Publishing Company, 1931. 364 p.

A library on the baby from before birth through the preschool years, compressed into one volume. While the material, especially on the physical care of mother and baby is sound, the presentation is inclined to be sentimental and flowery.

## Contributors to This Issue

**Dr. Park Lewis**, a practicing ophthalmologist in Buffalo, N. Y., and fellow of the American College of Surgeons, has been one of the motivating forces in the National Society for the Prevention of Blindness since its inception as a state committee in 1908. Dr. Lewis is a vice-president of the International Association for the Prevention of Blindness as well as of the National Society.

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A public health nurse in Birmingham, Alabama, **Miss Zoe La-Forge**, R.N., has had wide experience in sight conservation work, in both urban and rural communities.

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**Mr. Lewis H. Carris** is managing director of the National Society.

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**Miss Grace S. Harper**, who writes of the work of the Prevention of Blindness Department of the New York State Commission for the Blind, is executive secretary for that organization; in her work she draws upon a background rich in social and medical-social experience.

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**Dr. Thomas Hayes Curtin** of New York is a practicing ophthalmologist and is on the staff of the Bronx Eye and Ear Hospital.

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Nationally known for her work in organizing, advising and inspiring sight-saving classes, **Mrs. Winifred Hathaway**, associate director of the National Society, has been especially interested in illumination in the classroom and in the home.

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Among the Book Reviewers: **Miss Margaret Phelps**, assistant to **Dr. Thomas D. Wood** at Teachers College, Columbia University, has collaborated with him in this review. **Dr. Charles Sheard** is connected with the Mayo Clinic, Rochester, Minn., in the section of physics and biophysical research. **Miss Laurretta F. Riester** is director of the Extension Department, City Board of Education, Buffalo, N. Y.

